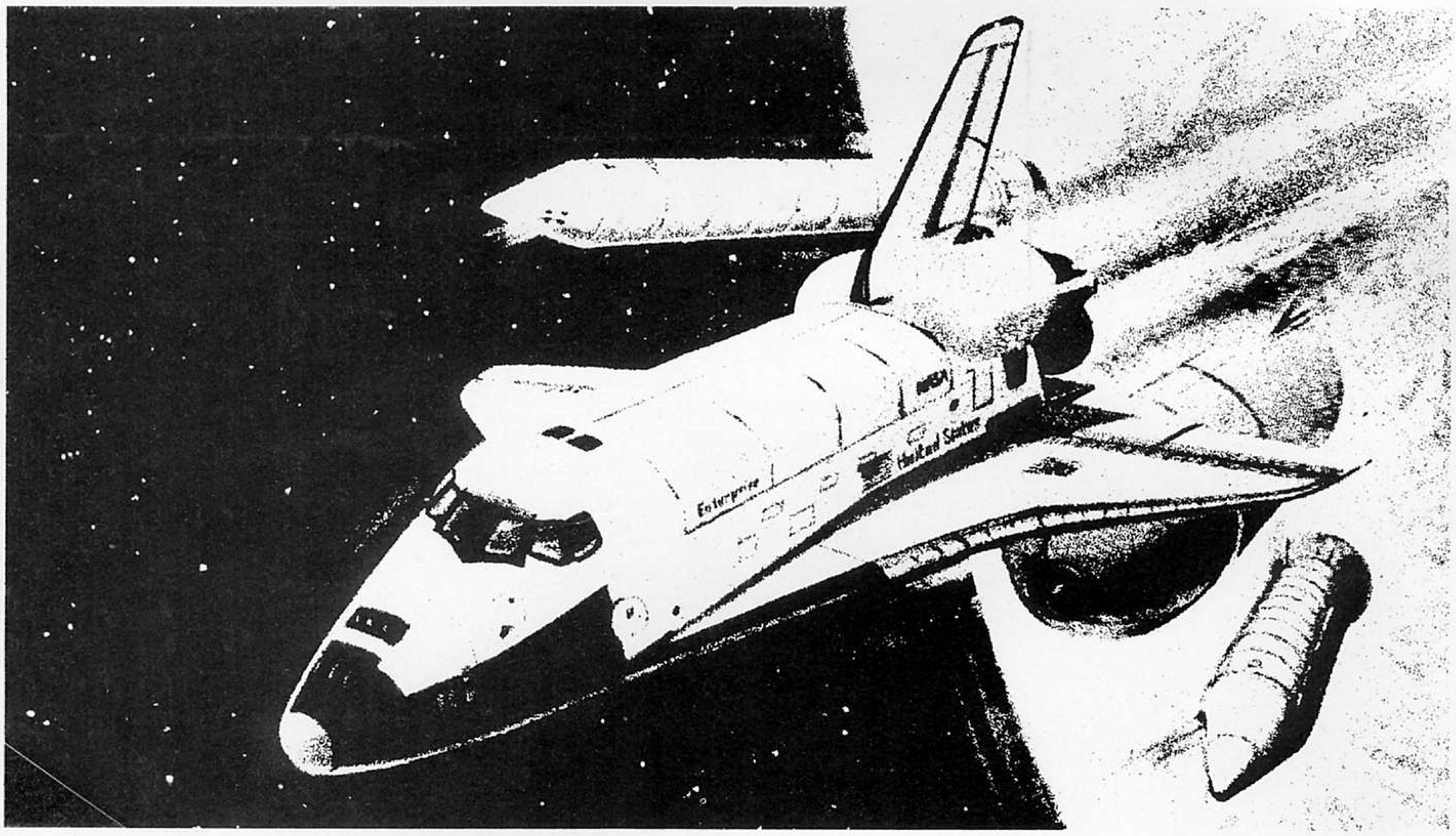
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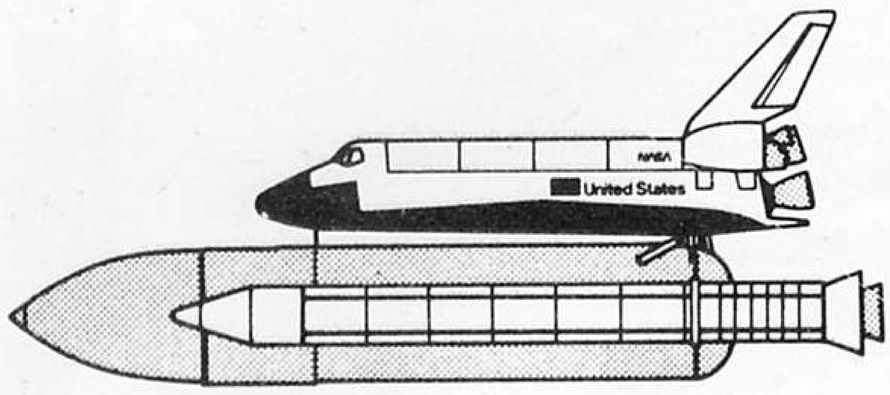
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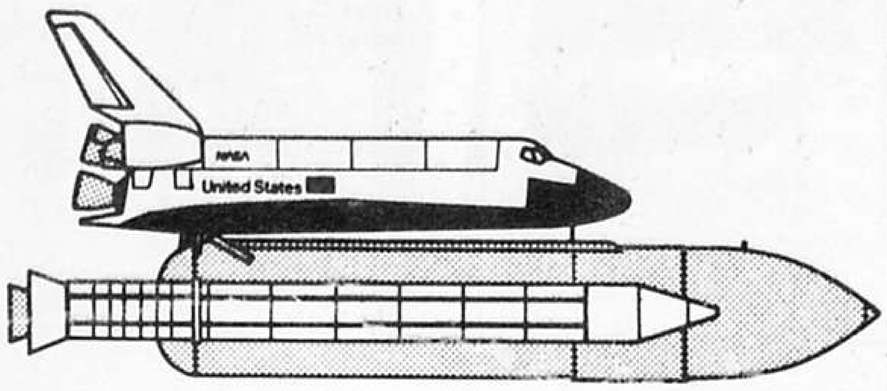
LEYLAND NATIONAL BUS — A new No. 10 model

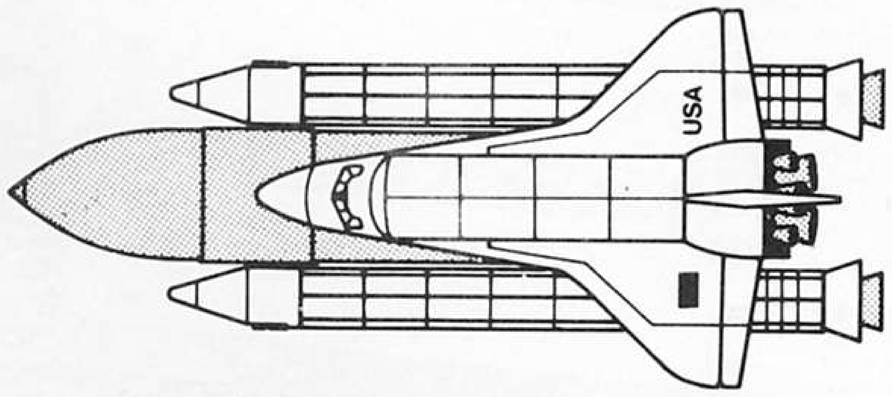
NEW FROM AIRFIX



THE 8.15 OF THE 1980's







For years the idea of spacecraft plying regularly between earth and space has been pure science fiction.

But now it's becoming science fact. In the shape of the Space Shuttle Transportation System being developed by NASA.

Its first manned space mission is planned for 1979, prior to the first scheduled operational mission in 1980.

By the mid 1980's, this re-usable space vehicle will be operating as a commuter ferry, shuttling men and materials with the same familiar regularity as the 8.15.

The Shuttle is now available in a 1/144 scale Airfix kit, with over 90 parts. The kit includes two strap on booster rockets, the huge fuel tank and a Space Lab payload.

Its detailed modelling is an eloquent demonstration of the close co-operation kindly provided by Rockwell Space Division, the Space Shuttle's designers.

Technical Details

Lift-Off Thrust:	6.61 million lb
Re-entry Speed:	17,450 mph
Re-entry Height:	76 miles
Touch-Down Speed:	215 mph

SPACE SHUTTLE
1/144 Scale

AIRFIX

MECCANO MAGAZINE

Vol. 64, No. 1 January 1979

ON THE COVER: Pictured with the real thing, a superb reproduction of a modern Leyland National single-deck bus designed and built by Roger Wallis of Solihull, Editor of the 'Midlands Meccano Guild Gazette'. Constructed from the contents of a current No. 10 Meccano Set, this advanced and detailed model features powered remote steering, working differential and an automatic two-speed gearbox. Interior lighting has also been included, although the components required for this extra feature are not included in the No. 10 Set. Full building instructions, beginning on page 20 inside, will be concluded in our next issue.

EDITOR—CHRIS JELLEY

Following rumours apparently circulating at the recent Meccano Exhibition in Darlington, Meccano Limited's Marketing Manager, Mr. Bryan Farrar, has written to refute any suggestion that the end of Meccano is nigh. 'On the contrary,' he explained, 'Everyone here is fully committed to building Meccano back up to its former glory.

'Over the last few years, Airfix Industries and the Government have invested a very substantial sum of money in Meccano Limited, mainly because they believe in its future. For two years now there has been national T.V. support at a level of expenditure exceeded only by three other hobby/toy products. Considerable investments have also been made overseas—in Canada, Australia, Scandinavia, Western Europe, the Middle East—everywhere, in fact, where potential exists.

'The new 1978 range has proved so successful that we have had to concentrate on producing sets to the exclusion of separate parts. By December, however, we were able to start meeting the demand for parts, as well, and parts will continue to be high on our priorities list.

'I think you will appreciate,' concluded Mr. Farrar, 'That this level of activity and investment would not even be considered if the future of the Meccano product was in doubt!'



A view looking at part of the Meccano Limited Trade Stand at this year's British Toy and Hobbies Fair held at Earls Court in January. Bert Love, who visited the Fair for Meccano Magazine reported that, in his independent opinion, the Company Stand was amongst the best, most attractive Stands in the whole show. Perhaps more importantly, it was also one of the busiest; during the time Bert was there, the Stand was crowded with trade buyers, many of whom were obviously placing orders. In fact, although full figures are not available at the time of writing, the Company confirms that sales at the Fair showed a substantial increase on last year. Bert's report, containing the very latest news of 1979 Meccano developments, can be found on page 14 and 15 inside this issue.

SAD GOODBYE

On a personal note this is a very sad occasion for me. After 18 years with Meccano Limited, most of them spent in some capacity with 'Meccano Magazine', I am leaving the Company. Indeed, when you read this I will be settled (hopefully) in my new job as Press Officer for National Girobank in Bootle.

This, then, will almost certainly be my last Editorial, though the M.M. itself will continue in force. For me, however, it is a time for goodbyes and a time for thanks — and thanks are definitely in order.

Since taking over as Editor, first of the MMQ in 1973 and later of the 'new' MM, in January last year, I have received invaluable help from modellers all over the world. I should therefore like to thank everybody who has helped in any way, whether with material, models, constructive criticism, praise or just plain loyalty and general support. I should particularly like to thank all who have contributed articles for publication during my editorship, especially regular contributors. And in this category I must single out for special thanks Mr. Bert Love, without whose pen, camera and Meccano expertise the magazine would be much the poorer, and Mr. Harold Taylor who, over all my 18 years with the Company, has designed scores if not hundreds of models for our pages.

Most of all, though, I must thank all readers for taking the magazine, and for the often endless patience shown by the great majority, despite late circulation and other annoying problems. May I beg the same support for the future under your new Editor, when appointed.

Though I move to new employment voluntarily, I leave Meccano with considerable regret. I have had many happy times over the years and have also had the pleasure of meeting many Meccano modellers. In fact, it is breaking relations with the modellers, many of whom I now regard as more than just aquaintances, that comes as perhaps the biggest wrench. But, with my family responsibilities, the time has come to mover to pastures new and the decision is made. So I sign off for the last time and, in doing so, I wish all readers, as well as the MM and Meccano Limited all the very best for the future.

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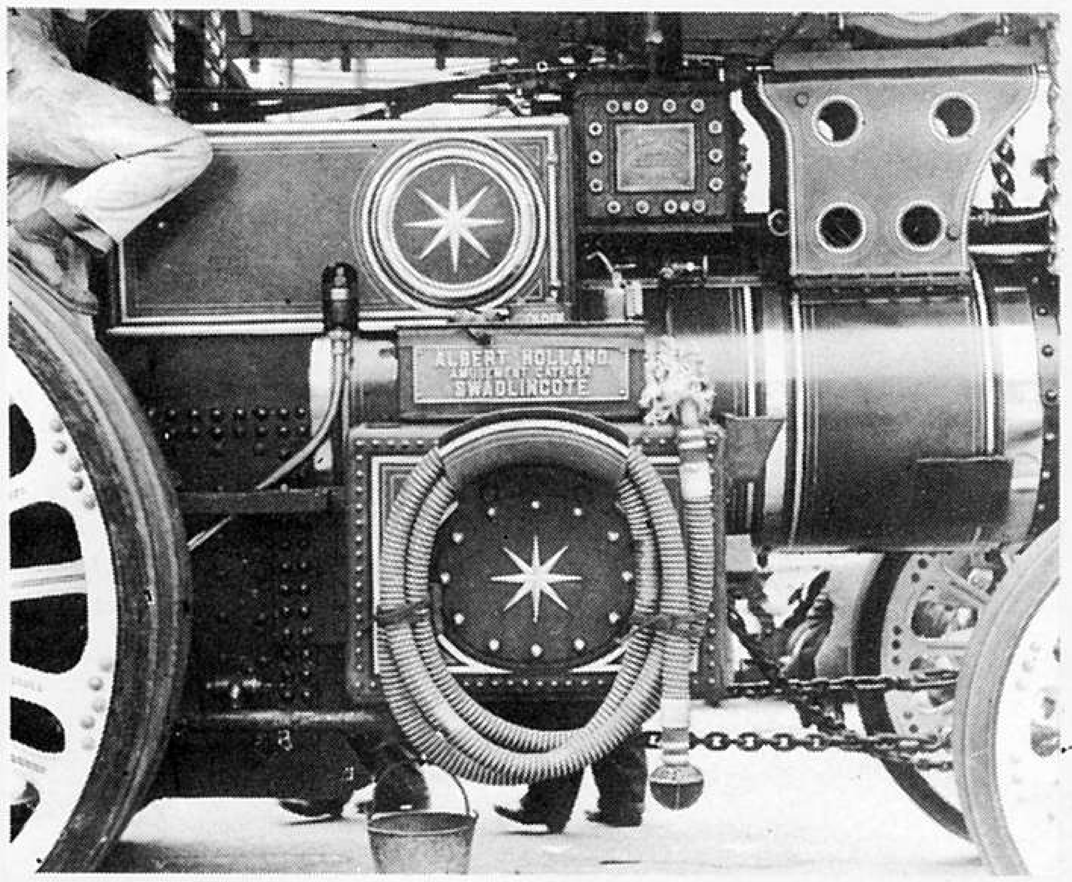


Fig. 1, side elevation of Burrell Scenic Locomotive 'Winston Churchill'. Note size of steam chest by comparison with boiler.

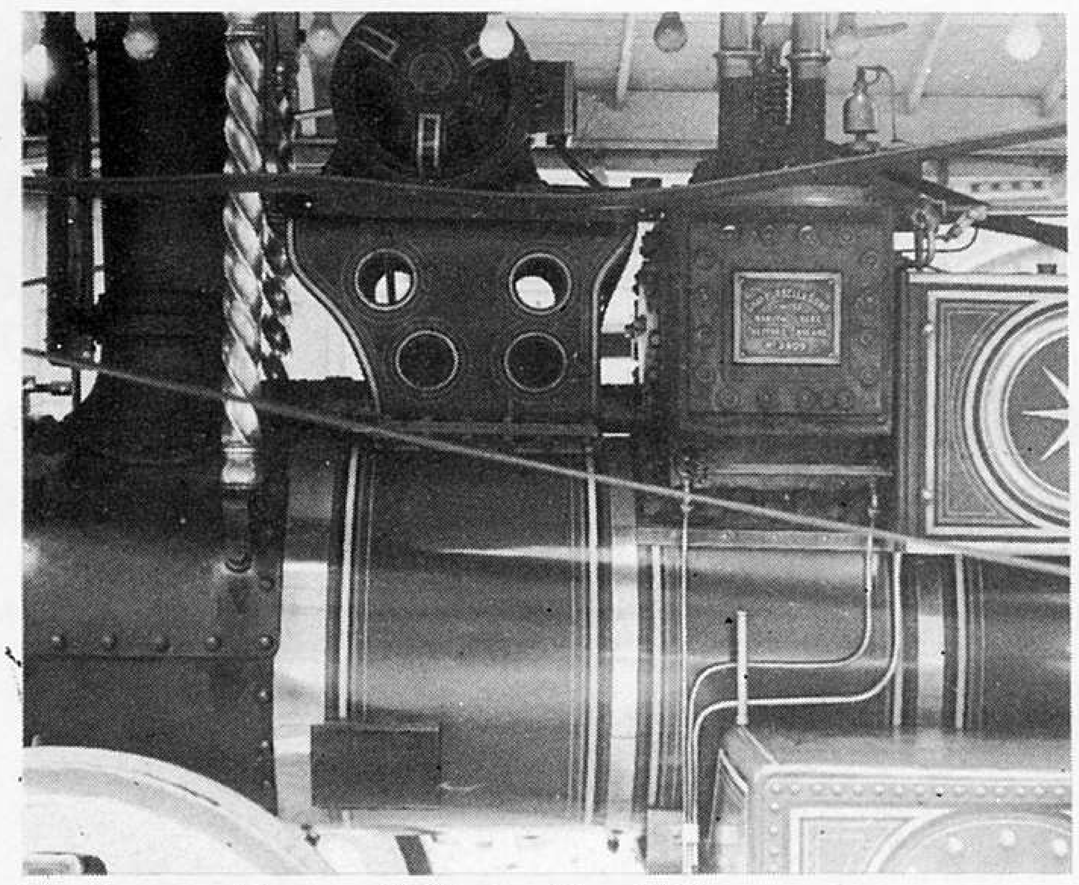


Fig. 2, a nearside view of 'Winston Churchill' showing symmetrical construction.

Part 5 of COLIN HAMILTON'S series on traction engine modelling deals with some of the features found in the central portion of a

SHOWMAN'S ENGINE

HAVING looked at the back and front ends of engines in previous chapters we now go on to examine in detail the midships portion of a typical Burrell Showman's Scenic Engine, using 'Winstone Churchill' once again.

Fig. 1 shows an excellent side elevation from which the proportions of the steam chest can be compared with those of the boiler on which it is mounted and the simplicity of the box-like structure should be noted by Meccano constructors who frequently go for a more ornate and curvacious structure at this point. Fig. 2 shows just how symmetrical is this scenic engine when viewed from the nearside (pavement side in the U.K.), but we need to study Fig. 3 to see that this Burrell design still has room to accommodate twin cylinders side by side, one being the high pressure cylinder (smaller circular end capping disc) and one low pressure cylinder (nearest camera) which makes use of the expanding steam from the high pressure exhaust part. 'Switching' of the steam from the boiler to the high pressure cylinder and then to the low pressure side of the steam chest is carried out by slide-valves outboard of each cylinder (but inside the steam chest) actuated by eccentrics on the main crankshaft. Simple twin quadrant gear allows the slide valves to reverse their phase so that the crankshaft will run in either direction.

Fig. 4 shows an attempt to reproduce a simple steam chest on a Meccano model which simulates, on the nearside, the squared-off box type of construction, but only one cylinder is attempted. End capping for this cylinder is provided by an 8-hole Wheel Disc with a ¾" Washer bolted in its centre. Both of these components are in black finish from earlier Meccano days and readers who have such parts from yesteryear should bear in mind the realism which such parts add to the 'smoky' parts of traction engines and railway locomotives. From Fig. 4 it is obvious that 3" x 1½" Flat Plates form the side shields of the connecting rod and eccentric gear and a crosshead of two Short Couplings on a 1" Rod runs in piston guides made from a 2½" Rod held by Collars to the side Plate and a 2" Rod mounted in a Rod Socket locked to the front plate of the steam chest. A slide for the eccentric connecting rod is simply a Slide Piece running on a 2½" Strip attached by a Fishplate to the steam chest side.

If we now look at Fig. 5 it is clear that our model shows a compromise in construction with a curved form to the 'offside' view of the steam chest. This is achieved quite simply by using a pair of Threaded Bosses internally to which the 8-hole Wheel Discs are attached at their '3 o'clock' and '9 o'clock' positions. A pair of 2½" x 1½" Flexible Plates are trapped under the top and bottom plates of the steam chest and curved over the offside to be fixed to the internal Bosses by an overlaid 1½" Strip and Washer-packed Handrail Supports as shown.

Top plates on traction engine steam chests are the normal place to find mountings for steam whistles, safety valves, regulators, or governors, and vertical exhaust steam pipes.

Fig. 3, the front end of a Burrell steam chest showing high and low pressure cylinder plates.

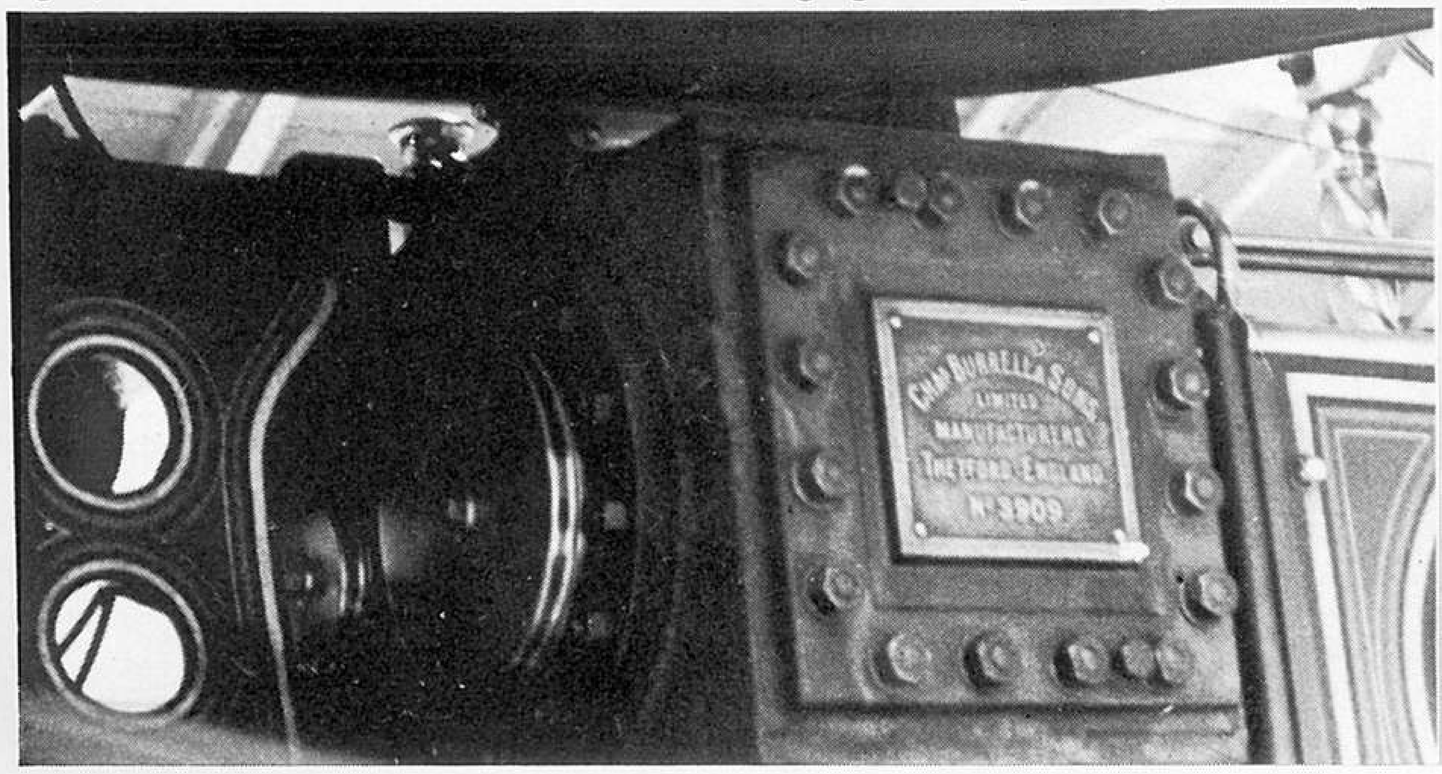
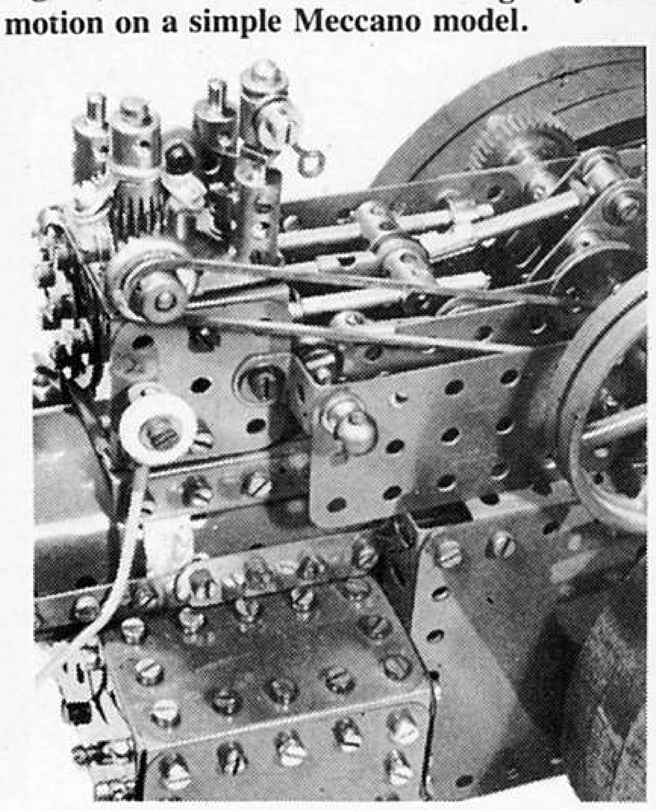


Fig. 4, the steam chest and single cylinder motion on a simple Meccano model.



Figs. 4 and 5 show how these items are modelled in standard Meccano parts. Modelling to this 'scale' (roughly speaking) requires compact construction and the centrifugal governor in this case uses a small Contrate Wheel drive to a 15t Pinion, the actual boss of the Contrate forming the drive pulley connected by a 6" Driving Band to a ½" fixed Pulley on the crankshaft. A Small Fork Piece has its lugs splayed outwards as shown and weighted with Set Screws attached by single Nuts to form bob-weights. The friction between the boss face of the 15t Pinion and that of the Fork Pieces is sufficient to give a realistic rotation on the 1⅛" Bolt set in the Coupling below.

A complete steam whistle can be seen in Fig. 4. Below the top plate of the steam chest, two Long Threaded Pins are set into the ends of a pair of 3" Girders running across the top. A standard Threaded Pin is similarly attached to support the Coupling forming the post of the steam whistle in the opposite corner of the steam chest at the top, (see Figs. 4 and 5). A 1½" Square Plate is dropped over the three Threaded Pins and two Couplings on the offside Long Threaded Pins clamp this Plate in place. Completion of the steam whistle is via a second standard Threaded Pin on to which is screwed a Threaded Boss fitted with an electrical Contact Screw, packed up by Washers, and a Wire Hook is trapped by Washers on a Set Screw in the side of the Boss. If a piece of Meccano Cord is attached and run back to the driver's position, the whistle is completed.

Location and design of these accessories gives the modeller great scope to exercise his choice of standard 'brassware', etc. to simulate the items referred to above and if the modeller has no access to the real locomotives, then library books should provide numerous illustrations of all these accessories. Illustrations in these articles can only begin to point the modeller in the right direction. Similarly, construction of the crankshaft in a Meccano traction engine can be simple or complex. That used in the excellent Fowler Ploughing Engine featured on the cover of the previous M.M. is a solid Meccano Axle Rod making use of four Meccano Eccentrics to give the twin cylinder and valve-gear motion required. Fig. 4 shows how a built-up crankshaft is made for a single cylinder engine. A start is made by setting up two Double Arm Cranks on any Meccano Rod and connecting the non-slotted ends by a ¾" Bolt and lock-nuts, spaced by appropriate Washers to permit a Collar to rotate freely. A standard Threaded Pin is fixed in a Rod Connector and screwed partially into the Collar. It is then a simple matter to extend the connecting rod from the Rod Connector as required.

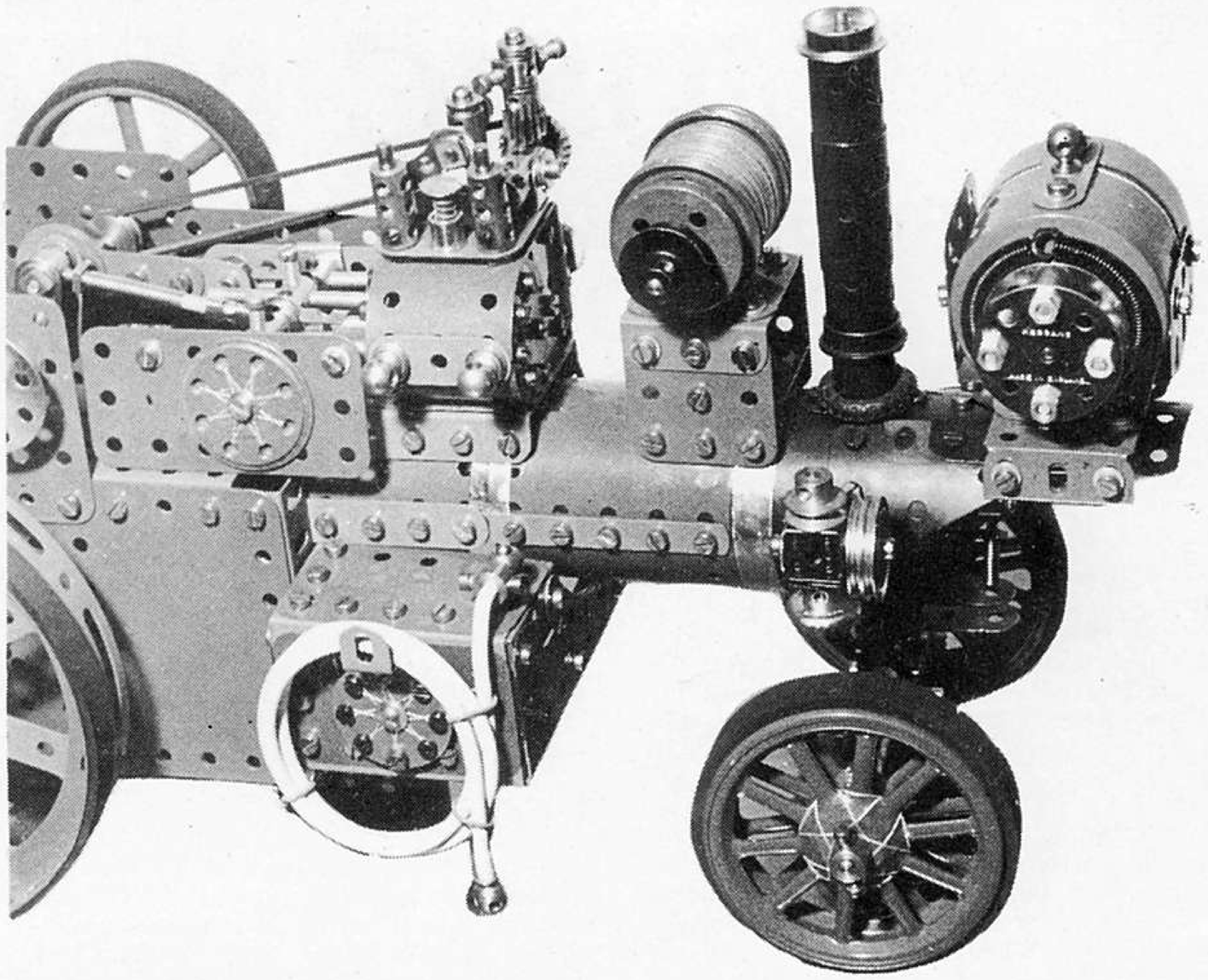
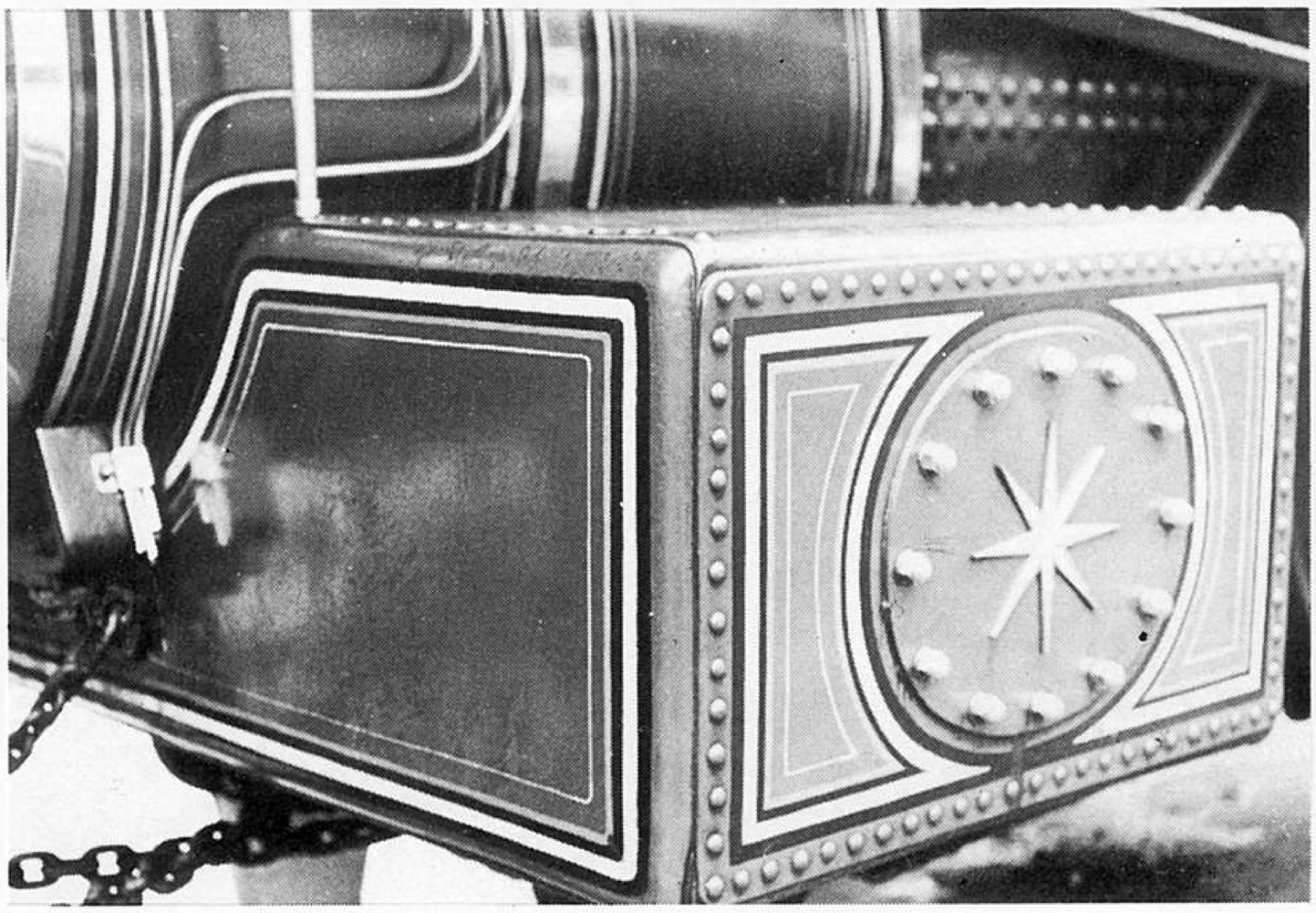


Fig. 5, an offside view of a Meccano showman's locomotive showing general features and ornamentation. Note simulated water hose and belly tanks.

Once the pair of Double Arm Cranks have been securely lock-nutted and checked they may be removed from the Axle Rod on which they were set up and then fitted with separate lengths of Meccano Rod to suit the crankshaft bearings. These bearings should be substantial and carefully set up. Double Arm Cranks make useful crankshaft bearings, or multiple layers of short strips, but they should always be set up by using a selected straight Meccano Axle Rod to ensure no binding when these reinforced bearings are bolted up at the final stages. Advanced modellers are able to extend this technique using pairs of Couplings as the webs of the crankshaft to make up twin crank jobs very effectively. Correct locking with appropriate grub screws can ensure that these built-up crankshafts run truly and for long periods at model shows.

Long-distance traction engines, including showmen's engines, had to plan 'water stops' very carefully and the fitting of belly tanks to augment the normal bunker was common practice for these road locomotives. Figs. 1 and 6 show the belly tanks on the Burrell together with the means of topping-up by suction hose from the local duck-pond, river or canal. Reproductions of these tanks in Meccano are shown in Figs. 4 and 5 where, again, Meccano Flexible Plates of yesteryear are used for choice by virtue of the absence of elongated holes. In addition, brass-finished Set Screws of the period add a bright touch to the appearance. A small diversion from standard parts incorporates about 50cm of Woolworths spring curtain cord to simulate the suction hose on the model as this particular plastic-covered spring cord takes the threaded portion of a Handrail Support internally to act as the suction filter and the other end of the curtain cord fits nicely into the bore of a Handrail Coupling mounted on a Threaded Pin to represent the hose connector on top of the belly tank.

Fig. 6, a close-up of the Burrell belly tank showing typical 'star' ornamentation.



General decoration on a scenic engine again gives great scope to the Meccano modeller's initiative and creative skill. The 'Star' pattern common to Burrell tanks and sideplates is reproduced here on the Meccano model by 8-hole Wheel Discs laced in the pattern shown by gold-coloured sewing thread, the same as that used to decorate the spokes of the front wheels.

When the 'scale' of the model goes up a size, many of the Meccano circular parts such as Conical Discs, Wheel Flanges and Curved strips may be utilised for embellishing flywheels and side panels on showmen's engines and examples of this skill are regularly seen at the Henley Meccano Show. Add to this the very wide range of colour contrasts available through changes in the Meccano colour schemes over the past three decades and the scope is enormous.

As in other road vehicles, showmen's engines need gears and differentials and these will be dealt with in the next article.

MUSIC MAKER

A most unusual model designed by ANDREAS KONKOLY and described by 'SPANNER'

Hungarian enthusiast, Andreas Konkoly of Budapest—no stranger to these pages—is perhaps best known for his many and varied Meccano Pattern-Drawing Machines. But Meccanographs by no means represent the limit of his designing abilities. Andreas, in fact, is a prolific inventor whose ingenious models have covered a whole range of different subjects from his well-known walking horse, through clocks, steam engines and road vehicles, to gearboxes and robots. Many of his designs have been highly original in concept with some of the most unusual subjects being successfully tackled. Featured here is just one such example of a most unusual subject—a Music-making machine! It's not a musical box in the generally understood sense; more a unique machine which, as Andreas himself explains, produces a short harmonic melody similar to those which often precede a message over an airport or railway station tannoy system, or even a radio broadcast.

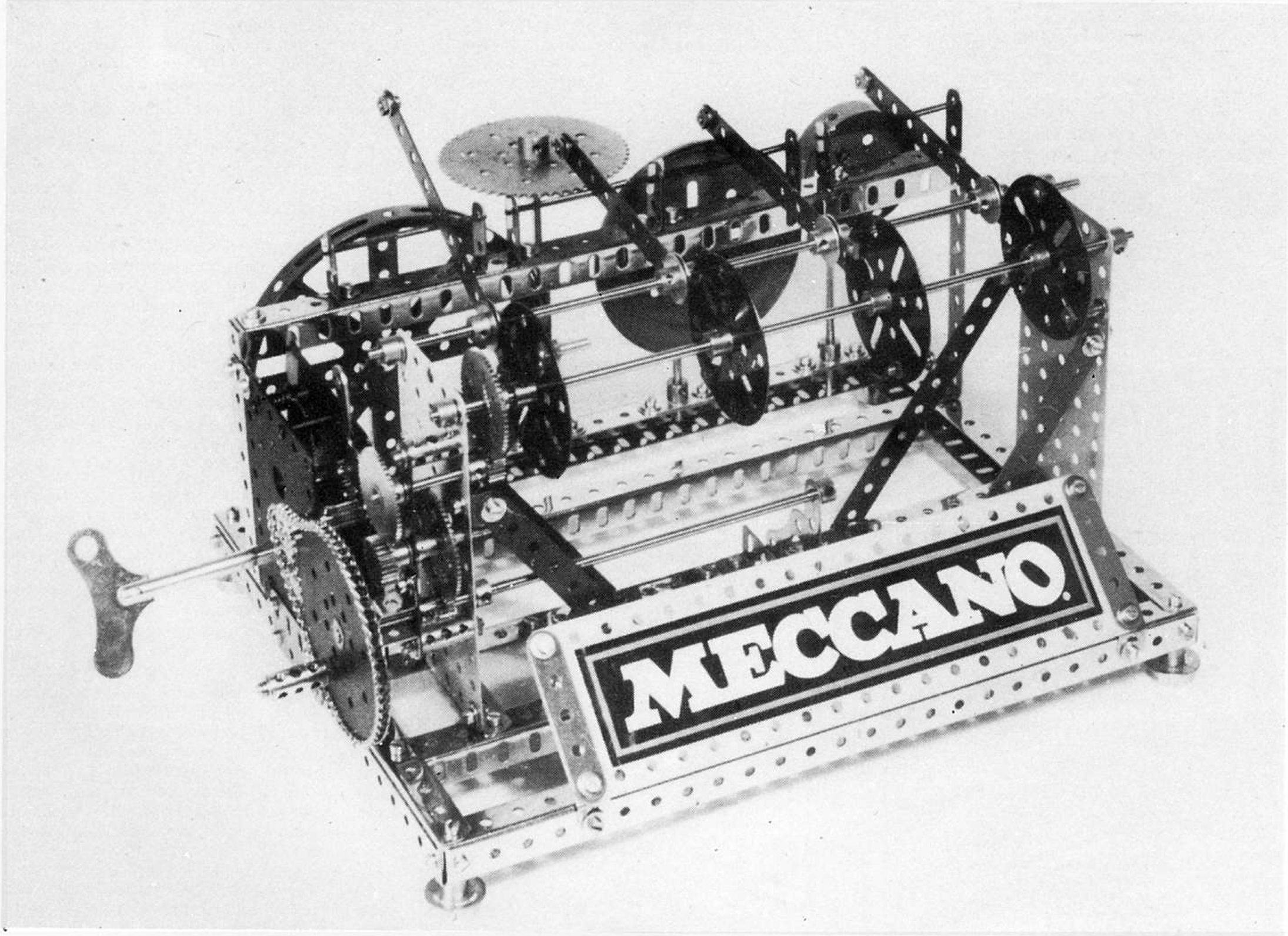
From past experience of being proved wrong, I hesitate to say that such a model has never before been made in Meccano, but I do say that I personally have never before come across such a model. It is certainly the first time we have ever featured anything like it in Meccano Magazine. The accompanying illustrations, incidentally, were supplied by Andreas; the following building instructions are re-written from Andreas's notes.

CONSTRUCTION

Beginning construction with the base, this consists of a 12½" x 9½" rectangular framework of U-section channel girders built up from 12½" and 9½" Angle Girders. Three more 12½" Angle Girders, spaced as shown, are bolted lengthwise inside the frame, at the same time fixing a 12½" x 2½" Strip Plate between the first and second of these girders. Four feet, one at each corner, are each provided by a ¾" Flanged Wheel attached to the frame by a ½" Bolt.

Now bolted to one of the long side members of the frame are four Double Arm Cranks which support the 'chimes' or resonant components. These are, in order, a Boiler End, a Ball Thrust Race Flanged Disc, a 3" Sprocket Wheel and a Hub Disc. The Boiler End is secured to a Coupling by a ½" Bolt, but is spaced from the Coupling by a Washer and two Nuts on the Bolt. The Coupling is fixed on the upper end of a 4½" Rod fixed in the boss of the first Double Arm Crank. Fixed in the second Double Arm Crank is a 3½" Rod, on the upper end of which a Coupling is also fixed. A ¾" Bolt fixed in this Coupling by a Nut carries the Flanged Disc locked away from the Coupling by another Nut. The 3" Sprocket Wheel is fixed on the upper end of a 5½" Rod fixed in the third Double Arm Crank, and, for purely ornamental purposes, a Coupling is fixed part way up this Rod. The Hub Disc is again fixed on a ¾" Bolt locked by a Nut in another Coupling mounted on the upper end of a 2½" Rod fixed in the fourth Double Arm Crank.

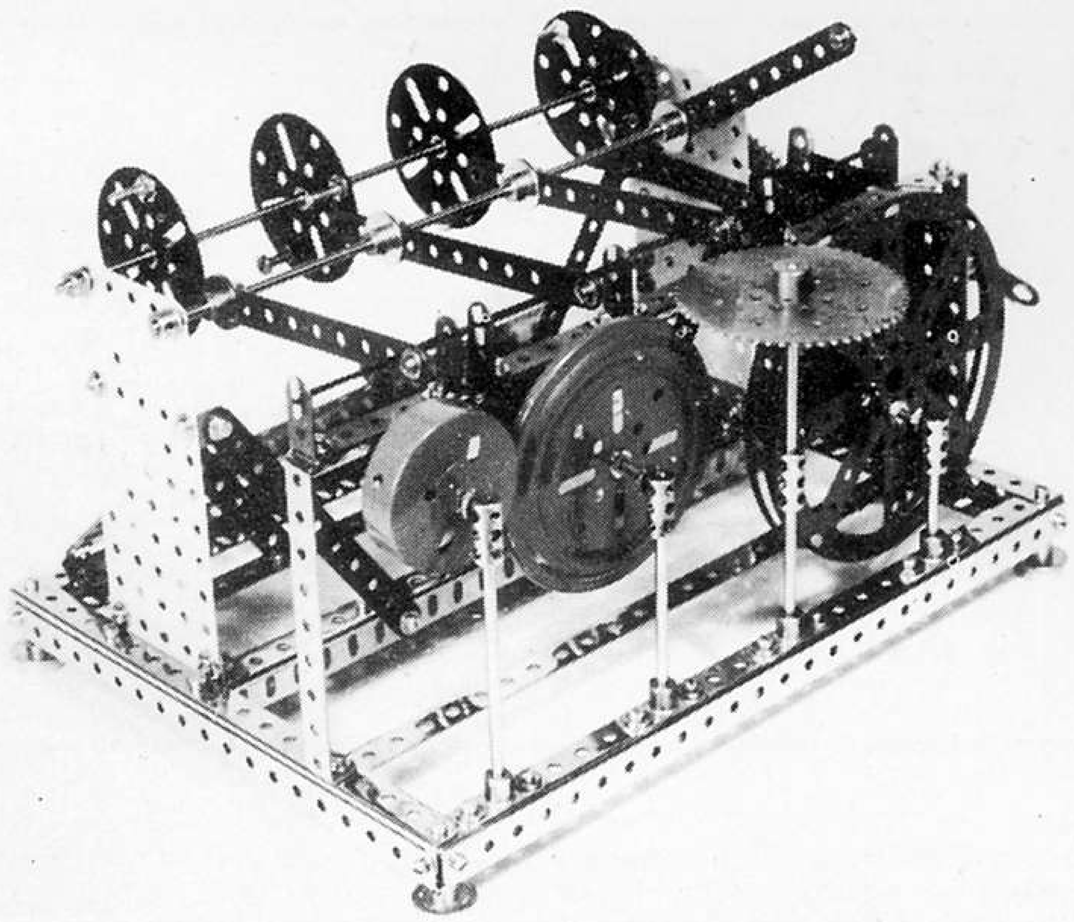
Next attached to the side members of the base frame are two 4½" x ½" Double Angle Strips, the upper flanges of which are connected by a 12½" Strip to which four 2½" x 1½" Double Angle Strips are bolted, each positioned in front of a chime. Stretched bet-

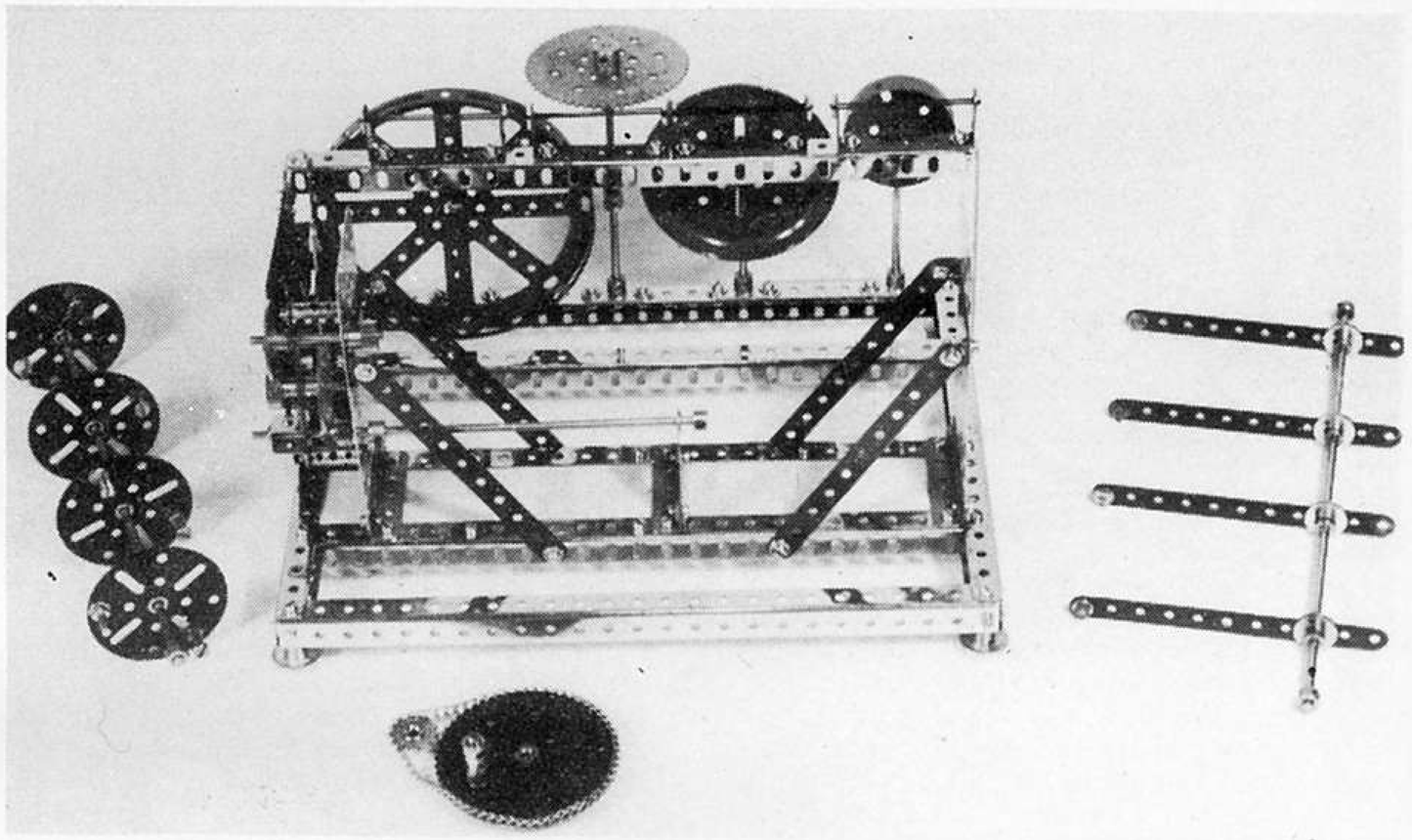


ween the lugs of each of these Double Angle Strips is a soft elastic band which can be held either by Meccano Bolts, or something similar. The builder used short lengths of matchstick, 12mm. long. The elastic bands will hold the striking hammers just clear of the chimes, but they must be sufficiently elastic to allow the hammers to strike the chimes when the hammers are activated. The four hammers themselves are each provided by a 5½" Strip, to one end of which two Washers are fixed by a Nut and Bolt. The hammers pivot freely on an 11½" Rod, each being positioned on the Rod between two ¾" Washers and Collars, the Rod passing through the third hole of the strips.

The Rod itself is held by Collars in the top inner corner holes of two 5½" x 3½" Flat Plates, the lower ends of which are bolted to 2½" Angle Girders one fixed through the fourth holes and one fixed through the second holes of two of the inner 12½" Angle Girders of the base frame. Each Flat Plate is braced by two diagonal 5½" Strips bolted between the Angle Girders and the lugs of a 2½" Double Angle Strip bolted through the fourth row of holes from the top of the Plate.

Held by Collars in the outer top corner holes of the Flat Plates is another 11½" Rod which carries the hammer activating wheels. Each of these is provided by a Face Plate, in one outer hole of which a Short Threaded Pin is fixed. Each Face Plate is positioned so that, as it revolves, the Threaded Pin makes contact with the inner end of the hammer, lifting the striking end clear of the elastic band to let it fall and strike the chime.





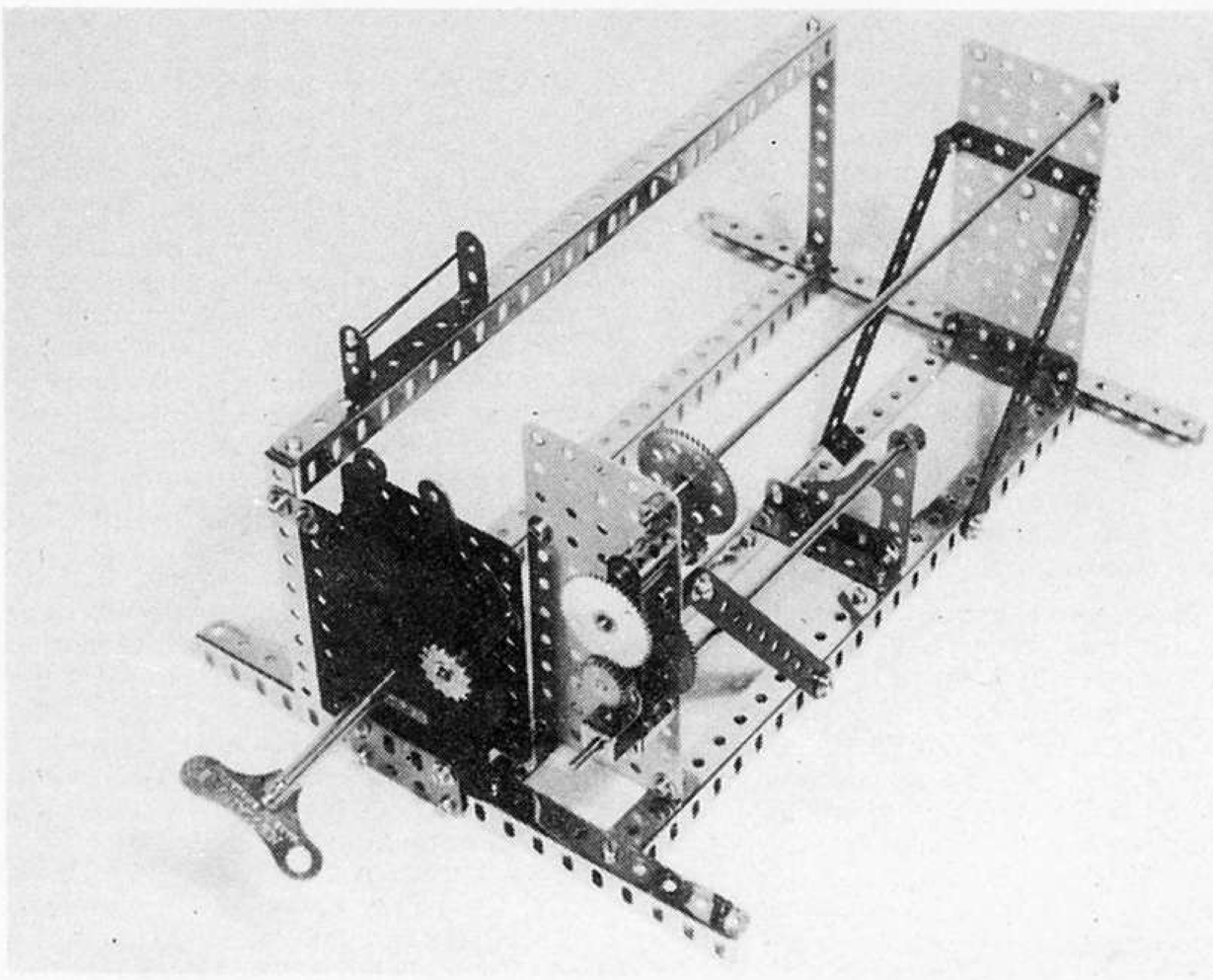
DRIVING MECHANISM

Mr Konkoly's original model is powered by a No. 1 Clockwork Motor, but, for the benefit of those not owning a Motor, Mr Konkoly incorporated provision for hand-operation. If a Clockwork Motor is to be fitted, it is attached to one side member of the base frame by a 2" Flat Girder and to the nearby 4½" x 2½" Double Angle Strip by a Fishplate attached to the upper corner of the outer side plate of the Motor.

Secured to the edge of the inner 5½" x 2½" Flat Plate, but spaced from it by Couplings on the shanks of the fixing 1⅛" Bolts, is a 3½" Strip, the lower securing Bolt also helping to fix a Double Bent Strip to the Strip. Journalled in this Double Bent Strip, as well as in the 3½" Strip, the Flat Plate and in a Corner Gusset bolted to a 2½" Angle Girder, bolted in turn to two of the base 12½" Angle Girders, is an 8" Rod carrying a ½" Pinion between the Flat Plate and the 3½" Strip and also carrying a 3" Sprocket Wheel on the outer end of the Rod. If the Motor is fitted, this Sprocket is connected by Chain to a ¾" Sprocket Wheel on the output shaft, but if the Motor is not fitted, then a winding handle is provided by a Coupling which revolves freely on a 1⅛" Bolt locked by Nuts in the face of the Sprocket Wheel.

In mesh with the 7/16" Pinion on the Rod is a 60-teeth Gear Wheel positioned above it on a 1½" Rod journalled in the Flat Plate and the 3½" Strip. A ¾ Pinion on the outer end of the Rod meshes with a 50-teeth Gear Wheel above it on the outer end of a 2" Rod journalled in the 3½" Strip and Flat Plate. The drive is completed by a ½" Pinion on the inner end of this Rod meshing with a 57-teeth Gear Wheel fixed on the 11½" Rod carrying the hammer activating Face Plates.

This, then, completes the model proper, but Mr. Konkoly always likes to identify his constructional medium to interested viewers. He therefore mounted a 'Meccano' label on a special label holder built from a 9½" x 2½" Strip Plate edged at the ends by 2½" Strips and attached to the front member of the base frame by Obtuse Angle Brackets. It adds a nice finishing touch!



PARTS REQUIRED

8 - 2	1 - 17	4 - 47	5 - 111a
1 - 3	1 - 18a	2 - 48a	3 - 111d
2 - 5	4 - 20b	2 - 48c	3 - 115
8 - 8	1 - 25	14 - 59	1 - 118
4 - 8a	1 - 26	4 - 62b	4 - 147b
3 - 9d	1 - 26c	7 - 63	1 - 162a
1 - 10	1 - 27	2 - 70	1 - 168a
2 - 12c	1 - 27a	2 - 95b	1 - 196
2 - 13	1 - 27d	1 - 96a	1 - 197
1 - 13a	99 - 37a	1 - 103g	4 - elastic bands
1 - 14a	82 - 37b	1 - 108	
1 - 15a	76 - 38	4 - 109	
1 - 16	8 - 38d	2 - 111	
1 - 16a	1 - 45	1 - No. 1 Clockwork Motor	

LET YOUR MODELS LIVE!

Part 10–by Geoff Pratt

TELL ME A STORY

THE past nine articles in this series have dealt with all the technical aspects of filming your models. Following the advice given, you should be capable of producing clear, steady, well-exposed moving pictures, accompanied by a satisfying soundtrack. But making a film is not just that. Many people move on to film-making after having first gained some experience with still photography and they often find film work a rather different matter. Although the two branches of photography have a great deal in common, in as much as they both record photographic images in the same way, there is in fact a world of difference between them. This difference is not only the obvious one of how the finished picture is viewed or used, nor even the fact that only one of them yields a *moving* picture.

With still pictures, a single shot can stand on its own. It is complete. You can expose a whole roll of film and each individual picture can tell its own story; there may be no relationship between one picture and the next. When you tackle filming, things are very much different in that individual shots of the subject mean little in themselves. When you are on holiday, for example, you can take snaps of this and that, whatever takes your fancy, without any thought of what you have already photographed, or what is to be photographed next. If you follow this practice with a cine camera the result is a hotch-potch of assorted views—a string of unrelated scenes that tells you very little. Possibly this is the very reason that so many people who buy a cine camera become disillusioned with the results. They can't effectively use their movie camera as freely and as easily as they can a still camera, otherwise they end up with a string of *moving snapshots*. This is not a film.

The user of a movie camera needs to use his brain as well: to plan, to remember what he has filmed already, and to have no small measure of determination in order to get the shots he still needs to complete his film. Because in a film one scene follows the next in a rigid pattern (as determined by the film editor), each scene has a bearing on what follows it and what preceded it. They are related to one another. As a simple example, let us consider two holiday snaps, one of a person wearing a red dress and the other of the same person wearing a blue dress. Nothing unusual there, but put this situation in a film with one shot immediately following the other and you have a fault in *continuity*. The person appears to change her dress suddenly. Because of the proximity of the shots to one another, we naturally link them together in our minds and expect that situations in those shots will not change inexplicably.

It is this mental link-up of consecutive shots that gives film its most powerful influence. We can film subjects that are not related to one another at all and make them appear to be related simply by their proximity to each other on the screen. These unrelated events may have been filmed days, weeks, even months apart—but on the screen, because they are placed close together, they appear to happen all within a short space of time.

By way of illustration, some years ago I made a short film featuring a life-sized 6 foot tall Meccano robot. In the film the robot is supposed to fire rockets at my small son who is beating a rapid retreat down the garden path! Shots 1, 2 and 4 were filmed on one occasion, but shot 3 was filmed at some other time due to the complexity of the set-up. (Incidentally, it had to be re-shot some three weeks later as the first attempt was under-exposed!) The explosion (shot 5) was a simple animated shot using coloured paper cut-outs of increasing size for each single frame. The scene of desolation (shot 6) was filmed on yet another occasion and was basically a table-top set-up, starting off with clouds of smoke which gradually cleared to reveal the supposed destruction.

This little sequence also illustrates another important filmic principle: *the overall effect of a sequence of shots is greater than the sum total of the effects of the individual shots.* In shots 1 and 2 above we see a boy running from the house. In shot 3 we see the robot walking from the house. We mentally link the two and assume that the robot is chasing the boy. But just suppose we re-arrange the shots, so that shot 1 *follows* instead of precedes shot 3. The boy would then appear to be running *after* the robot, instead of running away—which changes the story somewhat!

The effect all this has on our filming is that *we must think in terms of sequences;* not isolated shots, but a series of shots, where each series tells its own story. And here we have the clue to the whole business of films: A FILM SHOULD TELL A STORY.

IDEAS FOR FILMS

Just how you tell the story, or what the story is to be, is up to you, the film-maker. You may opt for a simple filmic record as a memento of your model. The film will then come under the category of a documentary. As a documentary it should be filmed as clearly as possible; no call for mood lighting here! Lighting should be uniform without heavy shadows obscuring details. Interiors of models are the most difficult to light adequately and it often calls for lighting to be as close to the camera lens as possible so as to avoid casting shadows. Even in daylight it may be found necessary to use a fill-in light, but a word of warning about mixing daylight and artificial light. They are of a different colour and some odd results will be obtained if they are mixed indiscriminately.

Before using a floodlight to augment daylight you need to place in front of it an A-D conversion filter (Blue), which will make its light the same colour as daylight. These filters are available from Cine Help Ltd., 172 South Ealing Road, London W5 4QL in all sizes at very reasonable cost. As a documentary, your film will set out to show as clearly as possible each feature of your model. An overall impression is also important so long shots as well as close-ups should be used to illustrate. Remember that a film is not like a still picture, where the eye can wander over each detail at will. The sharpness of detail on movie film is nowhere near as great as that of a still shot, so a single shot will not show sufficient detail. An establishing long shot at the beginning of a sequence will give a general impression, but medium shots and close-ups will emphasise each detail.

If you are making a sound film, don't fall into the trap of first filming the model and later thinking about what sound you can add. Think of the two aspects—sound and picture—at the same time. The finished film should be a harmonious blend of sound and pictures. If the sound is added as an afterthought the chances are that you will allow either insufficient, or too much time for the commentary—so that in places it will be gabbled to fit it all in and in other places there will be long spells of unbroken silence. In other words, *plan your film beforehand.* Decide what you want to say—how much information you want to put over—and plan the pictures accordingly.

If your films are purely for your own private record, then you can please yourself how you make it, but if you intend showing it to other people, whether they be fellow enthusiasts like yourself, the family or to general audiences, you must consider their feelings. It's too much to expect a lay audience to sit through a highly technical film, or for any audience to endure a film that has not been properly thought out and prepared.

If you can put something *more* into your film than just a bare presentation of facts, you will hold the attention of your audience far better. You are presumably enthusiastic about your Meccano modelling? Well, let that enthusiasm show! Be interesting! Any little anecdotes that can be related concerning the building of the model will add interest to the commentary. Express opinions in your film. What do you think of the design? What improvements would you like to add? Can the film be made to be used in an instructional way? A series of sequences of, say, different Meccanographs could be used to illustrate the development of this type of machine and to explain the principles involved in their construction. A model of a giant Scammel tractor could demonstrate the behaviour of the vehicle over very rough ground and the effectiveness of its suspension system.

FILMS FOR ENTERTAINMENT

Another approach to film-making is to use your models to tell a story—literally. When I built my giant robot in Meccano I wanted to record it—on film of course. So I made a straight documentary recording of the details and mechanisms which, to be frank, is boring to a lay audience. So I concocted this little domestic drama where my small son started to tinker with the six feet tall monster (unbeknown to me of course!) The inevitable happens; the robot comes to life, takes over the controls and chases him out, finally anihilating him with rockets! All good clean fun, and it managed to demonstrate most of the robot movements as well as providing good entertainment for general audiences.

In a similar way tanks can engage in mock battles. There are a great many warlike models that can be constructed—guns, missile launchers, bridges, lorries—and many do not need a lot of parts for their construction, so that a modeller with a reasonable collection of Meccano can have several models built up at one time. Remember, also, that the magic of movies means that a set of models in one series of shots can be immediately followed by shots of another set of models which have been made out of the same parts! In other words, if all the shots of, say, one side of a battle are filmed at one time, the models used can be dismantled and all the parts used to build models for the other side, which are then filmed at a later date. By editing together and suitably alternating between shots of each side of the battle, you will appear to have a tremendous range of Meccano models all built up at once!

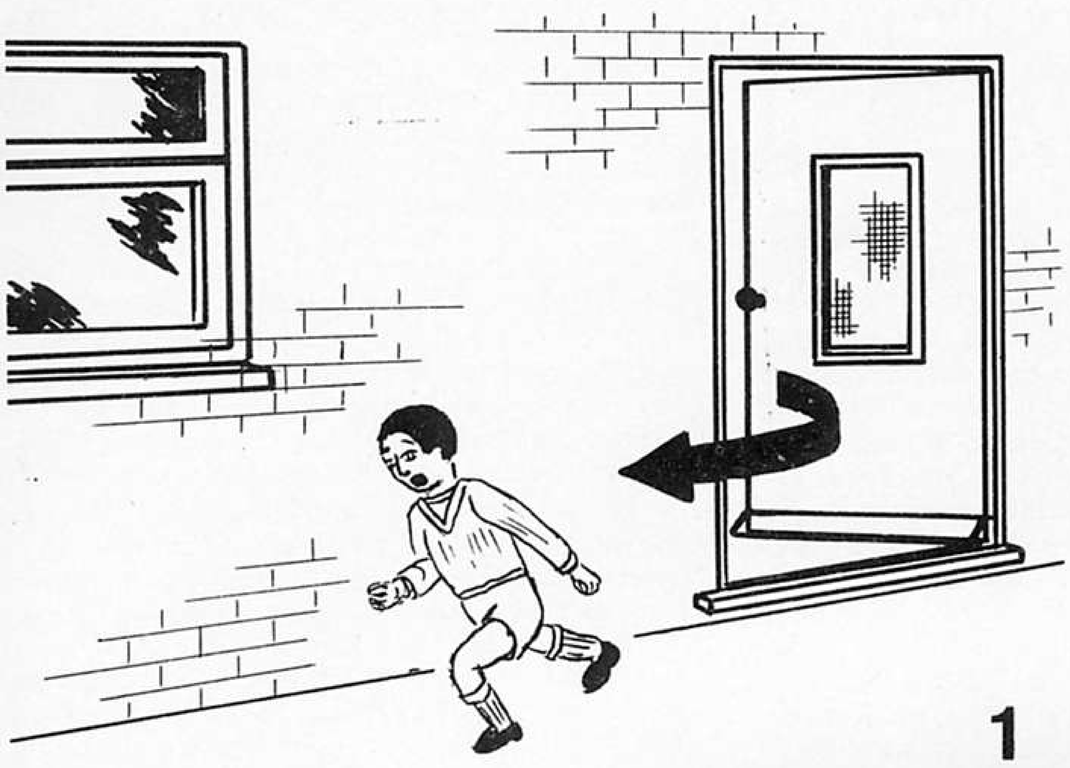
However, a film that features only models for its entire length will be very time-consuming to make. There are other themes that could be explored. The modeller can be shown building

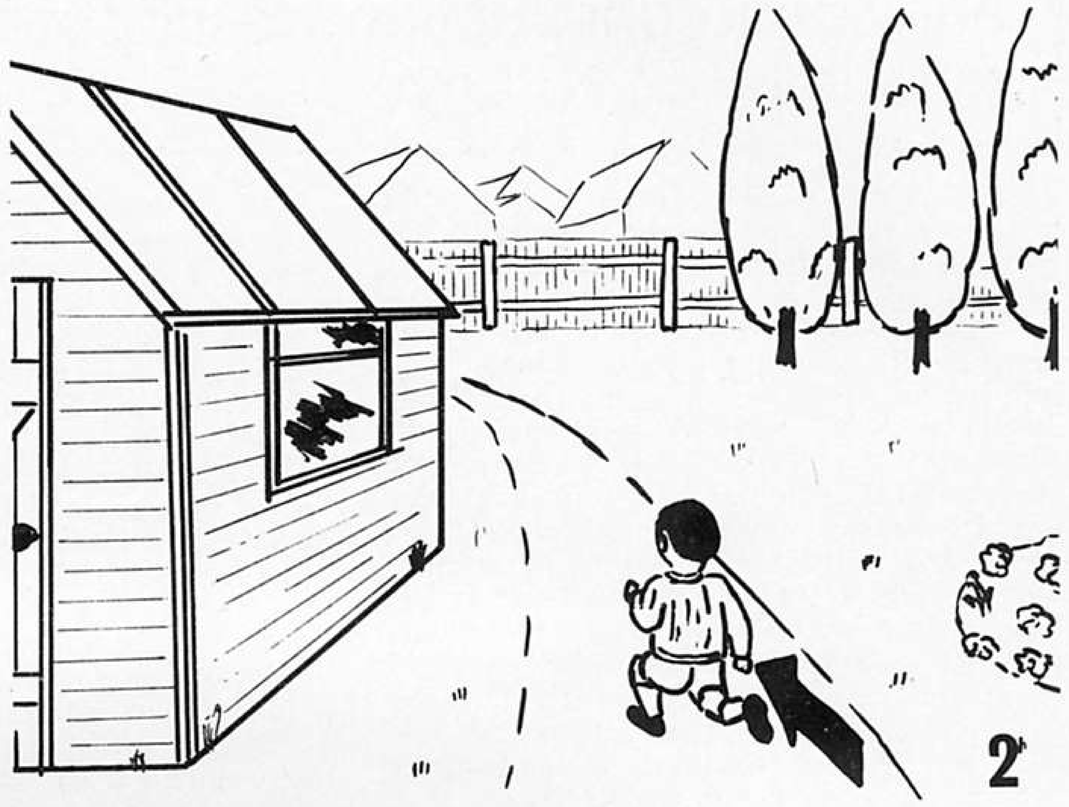
a model (with some help from a friend to operate the camera). He then falls asleep and the models come to life. Actionmen operate cranes, drive lorries, etc., and have a high old time until dawn when all is returned to normal just before the modeller wakes up. Or you may like to show the modeller daydreaming as he builds his model, and cut to a sequence of the model in an imitation real-life setting, e.g. a locomotive leaving a station and travelling through the countryside (insert here shots of passing fields filmed from a real moving train). The possibilities are limited only by your own imagination.

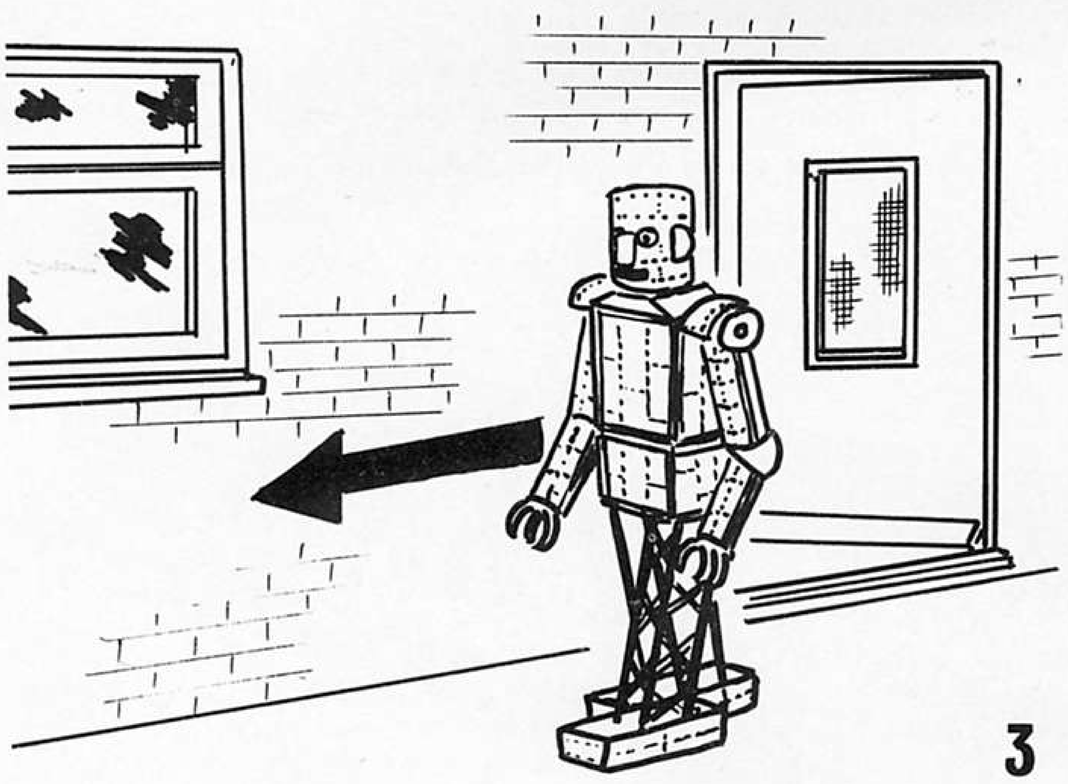
Imagination and inventiveness are worth far more than elaborate equipment. All of the ideas put forward here are capable of being carried out using a very simple camera, but how you use your equipment is up to you. The more effort you put into the planning and filming of your models, the greater will be the enjoyment of your audience.

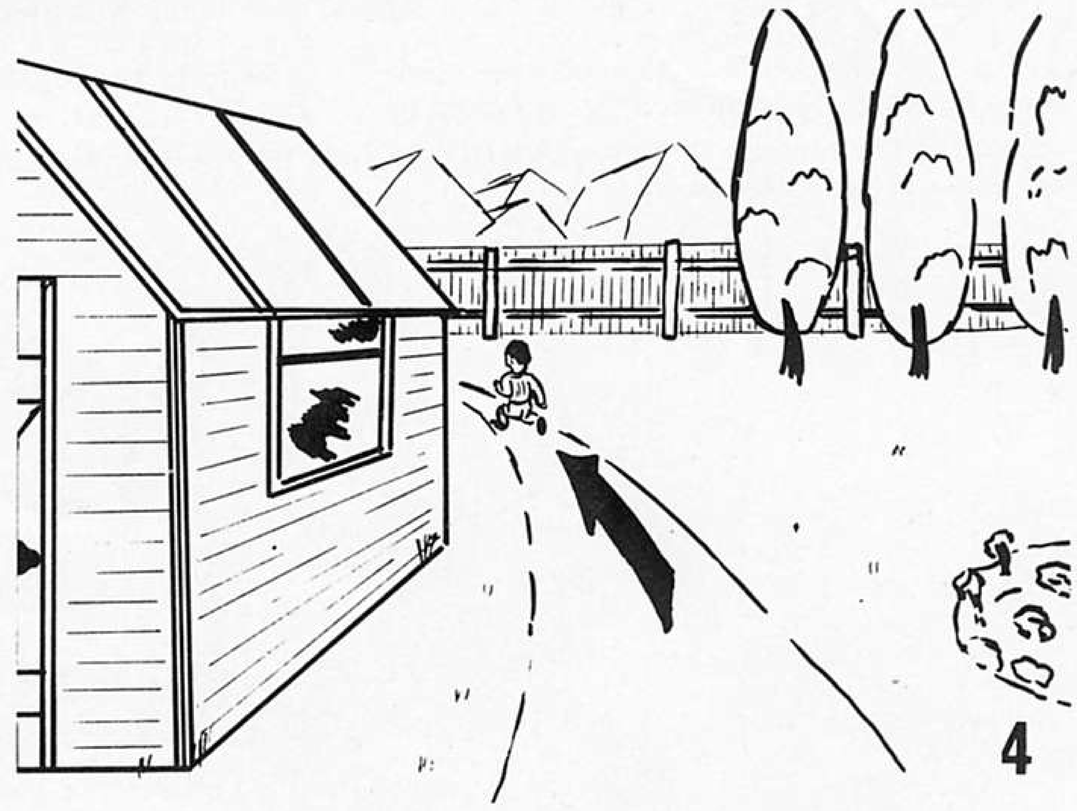
This concludes the series on filming of Meccano. I hope it has proved helpful and interesting to MM readers, and opened a few eyes as to the potential. Anyone keen enough to pursue this side of the hobby would do well to read a few magazines on the subject such as 'Movie Maker' or 'Film Making', which are published monthly.

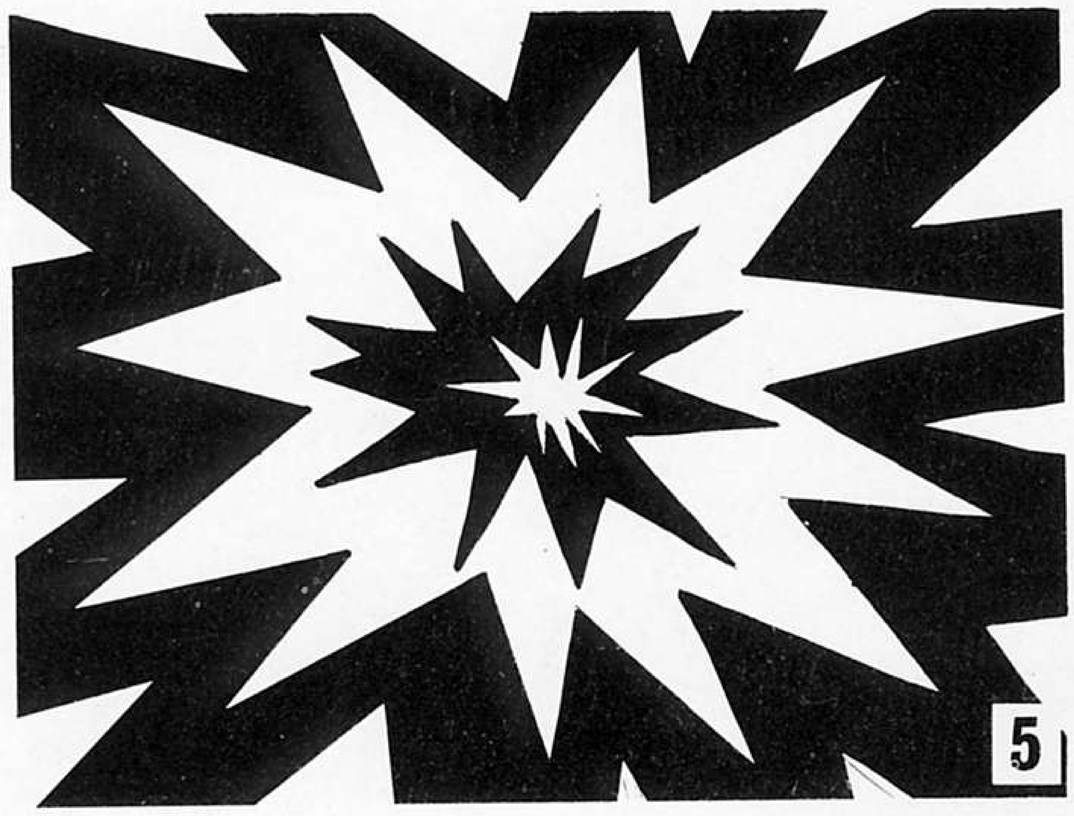
Good luck and good filming!


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Working Hammerhead Crane

A new No. 4 Set model by S. T. Beckett, with additional construction, description and illustrations by B. N. Love.

INSPIRED by the giant Meccano crane on the front cover of the July Meccano Magazine, Mr Beckett of Hall Green, Birmingham, made up his mind to get a smaller version of the model built by using almost the entire contents of the new No. 4 Meccano Set. He also set himself the task not only of reproducing the general outlines of the No. 10 model with acceptable realism, but also of reproducing the four main motions of the original, namely travelling, slewing, trolley and hoist, the last two being power-driven. It is clear from the illustrations that Mr Beckett has succeeded admirably and has even included an auxiliary rear hoist and gear shift mechanisms for the trolley and hoist to run simultaneously or independently. As this particular Meccano Set has been widely sold over the Christmas period, the model featured here should prove a very popular one.

TOWER

A start is made by building the tower as seen in the various illustrations. Four 5½" Strips are bolted to the slotted holes at each corner of a 3½" x 2½" Flanged Plate 1 to make the tower legs and these are reinforced five holes up by 3½" Double Angle Strips 2 at each side of the tower. Diagonal bracing is provided at the sides by a 3½" Narrow Strip set at the angle shown. Final bracing consists of pairs of 2½" Curved Strips lapped over two holes and bolted together, each curved arch thus formed being bolted on to the lugs on the D.A. Strips. A lower bearing for the turntable is provided by one 3" Pulley secured by two ½" Bolts through outer holes of the Pulley and two more through centre holes which also fix a Double Bent Strip below Flanged Plate 1, thus giving the boss of the Pulley, plus the Double Bent Strip, as a good vertical support for the turntable Axle Rod. It is important to place packing Washers on the Bolts between the Pulley face and the Flanged Plate to avoid buckling when the Nuts are tightened up. The four 1" Bush Wheels (part of the newly-designed Road Wheel assemblies) are fitted on ¾" Bolts with one Nut each and then secured to the bottom of the tower legs with one further Nut locked up tightly with sufficient clearance for the Bush Wheels to rotate freely on the shanks of the Bolts.

BOOM

A base plate is produced from two layers of 3½" x 2½" Flexible Plates 3 bolted to the second 3" Pulley forming the upper part of the turntable, with 2½" D.A. Strips fixed across the ends of the Flexible Plates. A 3½" Narrow Strip 4 is placed at each side, as shown, this overlaid with a 7½" Strip, running forward, on which a 2" Strip 5 is mounted vertically, all being secured to the lug of the front 2½" D.A. Strip. Running rearwards from the other D.A. Strip is a 4½" Narrow Strip and a 3" Narrow Strip, this latter being set forward at an angle to support the upper side of the boom. Both sides of the lower portion of the boom are completed in a similar manner.

Running rails for the trolley, or crab, are a pair of 9½" Girders 6 set with the round holes vertical and joined at the forward end of the boom by a 1½" D.A. Strip. The slotted holes of these Girders point outwards and are overlaid by the round holes of a 5½" Girder 7 set five holes back and bolted on at that point. Two more Bolts fix the Girders together firmly. Inner ends of the crab rails are fixed by their slotted holes to the forward edge of a 2½" x 1½" Flanged Plate 8 set across the boom, slotted flanges downwards. Setting the spacing of rails at this point is a 1½" Girder, also bolted to the leading edge of the small Flanged Plate, but this time by the round holes. This leaves the slotted holes of the Girder vertical to act as running guides for the ropes which will drive the crab trolley.

Rear extension of the boom is continued by 9½" Girders at each side. This time, the Girders have their slotted holes vertical and outboard with the round holes pointing inwards below so that a 5½" x 2½" Flat Plate 9 can be dropped inside them to form the base for the machinery house. The leading slotted hole of each 9½" Girder is bolted, inside, to the rear of 5½" Girders 7 already fixed to the crab rails. Additional attachment of the 9½" Girders is made to the flanges of the 2½" x 1½" Flanged

BELOW: The completed Hammerhead Crane built from a new No. 4 Set by S. T. Beckett with additional construction by the author. It performs all major crane movements.

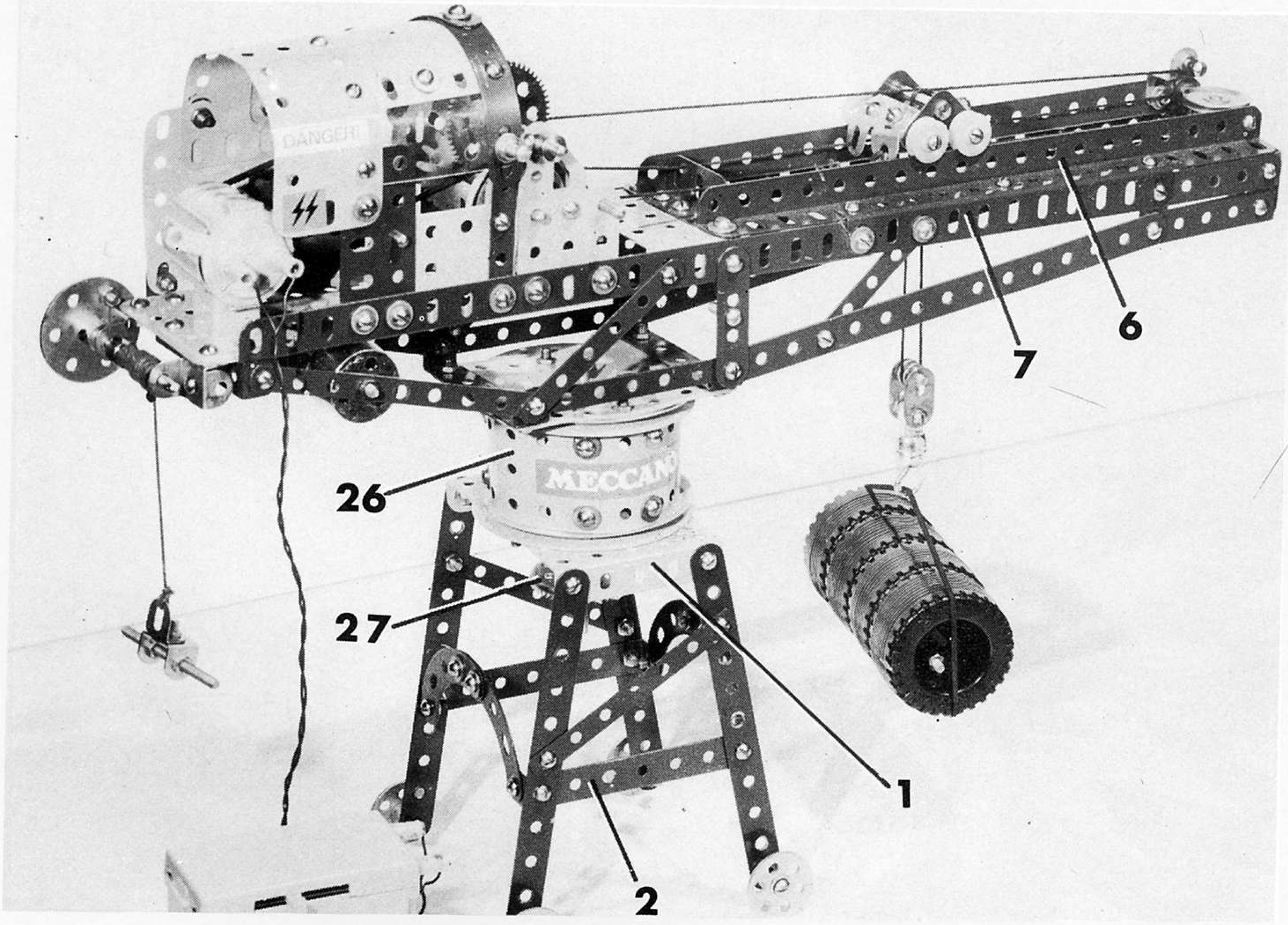


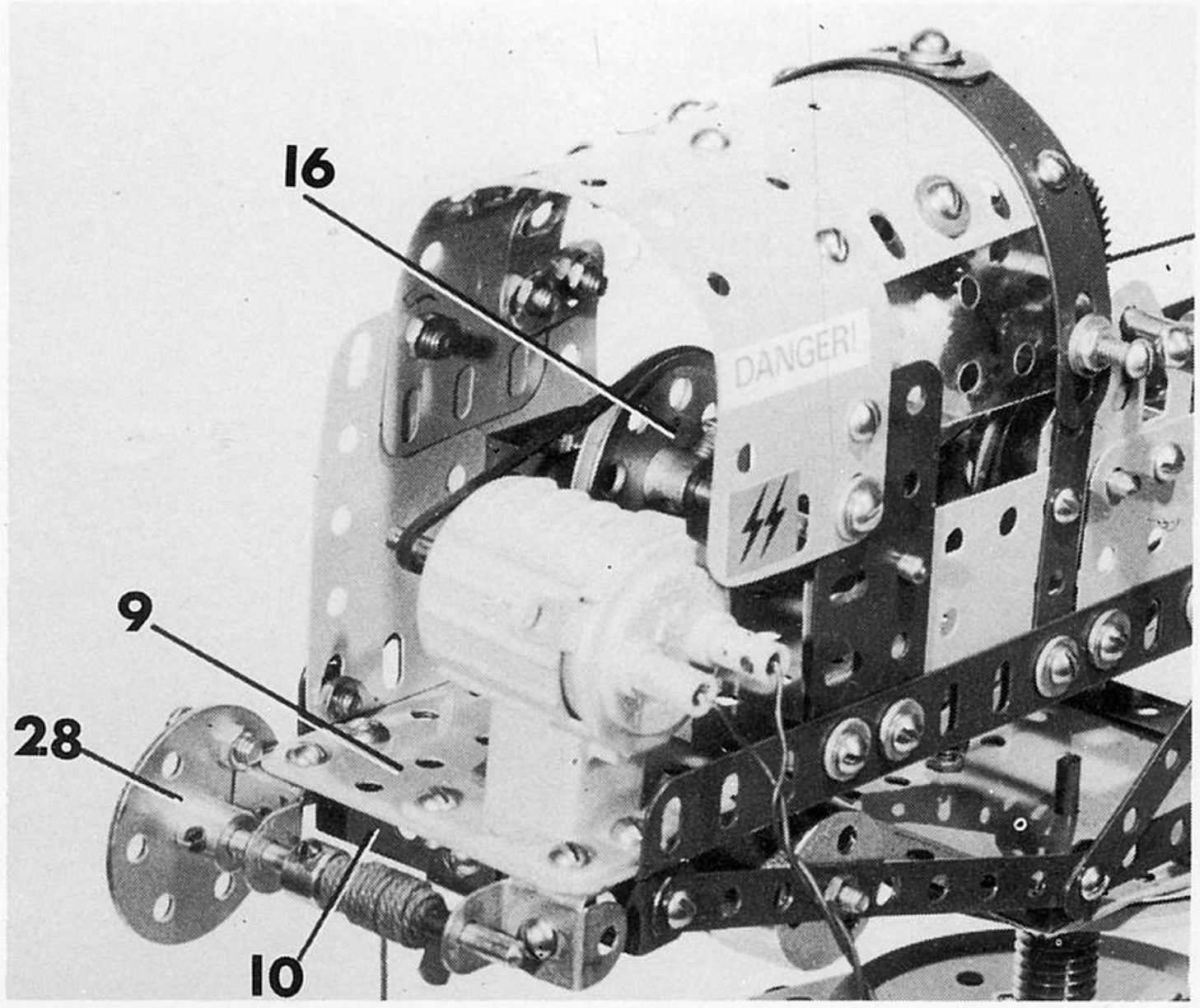
Plate 8, but one Waasher spacing between the Girder and flange is required on all four Bolt shanks to maintain correct spacing for a parallel boom. When placing the 5½" Flat Plate between the rear 9½" Girders, one hole overlap is allowed at the back to give correct location for the electric motor base.

At this stage the motor can be attached with its inside bolt holes running centrally on Flat Plate 9. Two of the Bolts that secure the inner row of the motor base also fix a 1" x ½" Double Bracket below the Flat Plate, lugs pointing forward, the back hole of the Bracket being one hole space in under the Plate. This is where a 2½" x ½" Double Angle Strip 10 is fixed across the back of the boom underneath, its central hole being bolted to the back of the Double Bracket with a single Washer spacing to give correct alignment for the attachment of the rear 4½" Narrow Strip forming the tail of the boom.

Attention is now given to the boom head where a 2½" Flat Girder 11 is attached by Angle Brackets to a pair of 2½" Strips running rearwards to join up with 5½" Girders 7 at the side of the boom. It will be noted that the slotted holes of the Flat Girders are at the top and masked by Washers. In the centre three top holes of the Flat Girder, a 1½" Angle Girder joins a 1½" x ½" D.A. Strip 12 that is holding the crab rails, to the Flat Girder, but hidden from view is a Double Bent Strip bolted on from below the D.A. Strip to form journals a 1½" Rod carrying a 1" Pulley as shown. A 2½" x ½" D.A. Strip 13 runs across and behind the lower edge of the Flat Girder to hold the last pair of 2½" Strips which complete the boom structure. These are bolted to the 7½" Strips at the side of the boom, but Fishplates are fixed inside at this join and carried up to the 5½" Girder above, advantage being taken of the slot in the Fishplates to allow a slight angling of the lower pair of 2½" Strips.

CRAB TROLLEY AND HOOK BLOCK

Side frames for the crab trolley are formed from a pair of 1" Corner Brackets 14 fixed at the top by a 1⅛" Bolt running through a Rod Connector which not only sets the sides of the crab firmly in place, but also provides a smooth running surface for the main hoisting cord. Additional bracing is supplied by 1" x ½" Angle Brackets bolted across the crab front and back and secured by ½" Angle Brackets, but before fixing these Angle Brackets to each other, they are overlaid by Obtuse Angle Brackets. The left-hand side Obtuse Brackets, front and back, have their slotted holes pointing downwards and slightly splayed outwards to allow the trolley cord to run through them with adequate clearance. By contrast, the other two Obtuse Brackets are bolted on by their slotted holes, which are overlaid with a Washer under the Bolt, and with their round holes downwards to make fixing points for the trolley cord.

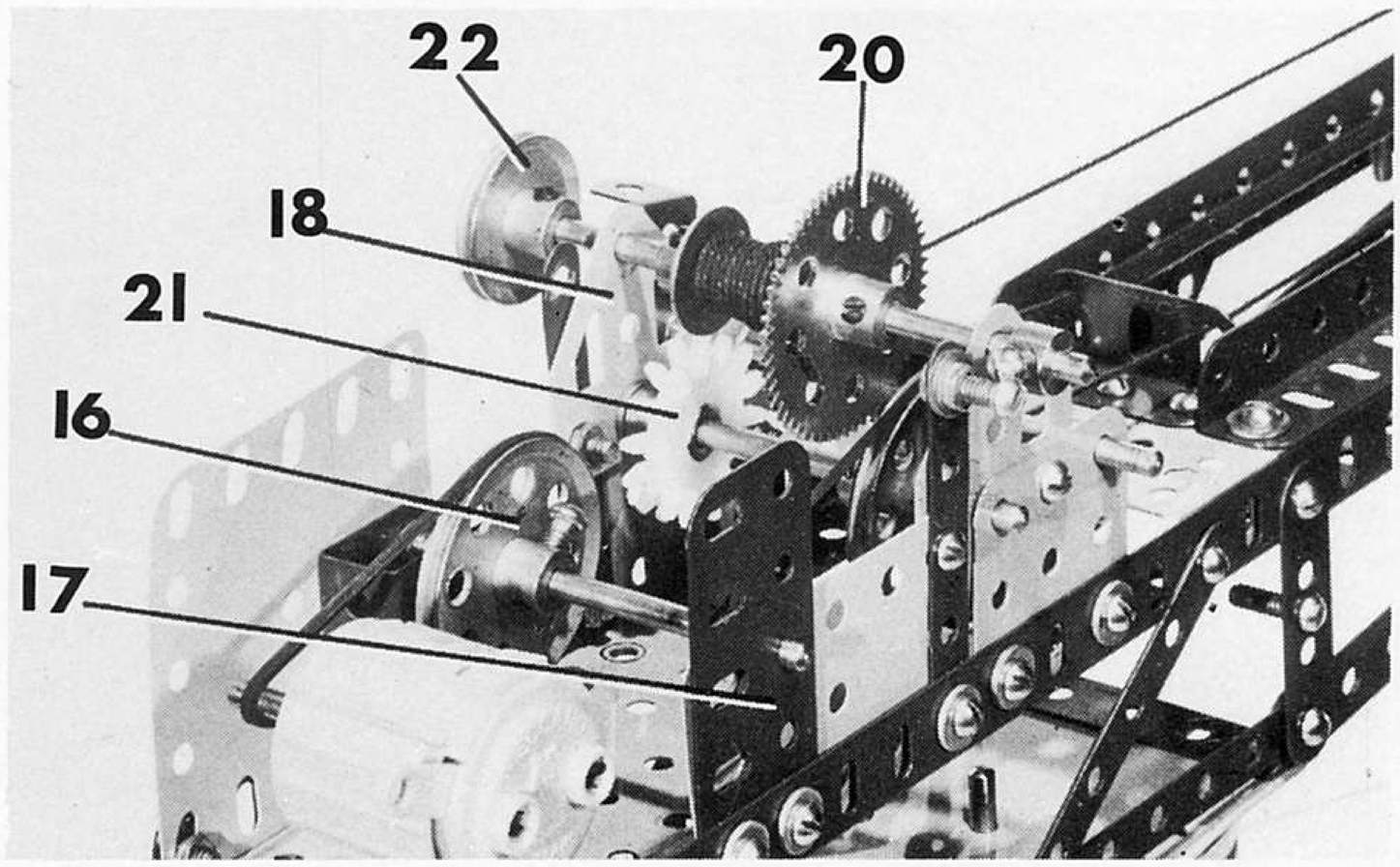


Close-up view of machinery house showing motor mounting, rear hoist, primary motor drive and brake stops for main hoist barrel.

About 30" of Meccano Cord is used here, one part being long enough to have a couple of turns round the winding shaft from where it passes back down the boom through one hole of the centralised 1½" Girder, round the boomhead Pulley and right back to the end of the rails where it is tied to the front Obtuse Bracket on the crab. During this process, this longer length of Cord passes through the slotted lugs of the left-hand Obtuse Brackets front and back of the trolley. To maintain tension, the second piece of Cord is attached to a 2½" Driving Band which is first looped through the rear Obtuse Bracket on the crab, and then this Cord is allowed to run out by turning the winding shaft to reel in the first Cord until the crab stops at the boomhead. A couple of turns of the second Cord are then wrapped round the winding shaft in the opposite direction and trapped under a Spring Clip, sufficient tension being put on to keep the rubber Driving Band on the crab slightly stretched. Four ½" Plastic Pulleys are lock-nutted on ½" Bolts and passed through the sides of the Corner Brackets and it is these Bolts which actually fix the internal Angle Brackets in place. This completes the crab trolley.

Crane hooks are not listed in the new Meccano Outfits although some sets are found in which the hook is packed as an 'extra'. However, to keep proportions reasonable, a small pulley block is made from a pair of Fishplates 15, which are locked together through the bottom holes by a ½" Bolt leaving a centre space free on which the standard Meccano Loaded Hook can pivot freely. A miniature pulley is made on a second ½" Bolt by locking a hexagonal Nut with two Washers in the centre of the Bolt by means of two more hexagonal Nuts. This Nut and Washer Combination just takes up the space between the Fishplates nicely and provides a small running pulley which rotates quite freely.

A detailed view of the mechanism in the machinery house showing hoist barrel in 'braked' position. Note Driving Band on crab trolley for tensioning.



CRANE MECHANISMS

One of the accompanying illustrations shows how the motor is mounted on the rear overhangings base plate and the first drive is taken by 6" Driving Band from the motor spindle to a 1½" Pulley 16 fixed to a 2½" Rod. Journals for this are made from a Channel Bearing at one side and a vertical 2½" Flat Girder 17 at the other. Leading edges of both of these components are set five holes forward inside the rear 9½" Girders forming the tail of the boom. Main mountings for the winding shafts are 1½" square Plates each side located as shown in one of the illustrations, and these are extended internally by Flat Trunnions 18 with two of their base line holes overlapping the top edge of the square Plates. Vertical 2½" Narrow Strips 19 support the rear hole of each Trunnion, both sides of the boom, and these Narrow Strips form part of the machinery house supports.

It will be noted that a ½" Bolt is stood off by lock-nuts from the top of Narrow Strip 19 to form a brake stop for the main hoist shaft. A 4" Rod is passed through the top of Trunnions 18 and carries, internally, a 57t Gear Wheel 20, boss outwards and then a ¾" Washer held in place by a Collar to form the main hoist winding drum. Just over ½" of slide is permitted on this shaft to allow the Gear to be disengaged from a 19t Pinion on a 3" Rod mounted below the winding shaft. Next to the Pinion is a second 1½" Pulley, boss outwards to locate the shaft in place, the other end of the Rod carrying a Multi-Purpose Gear Wheel 21, also boss outwards, with a one-Washer spacing. A 1" Pulley 22 on the winding shaft acts as a 'push button' →

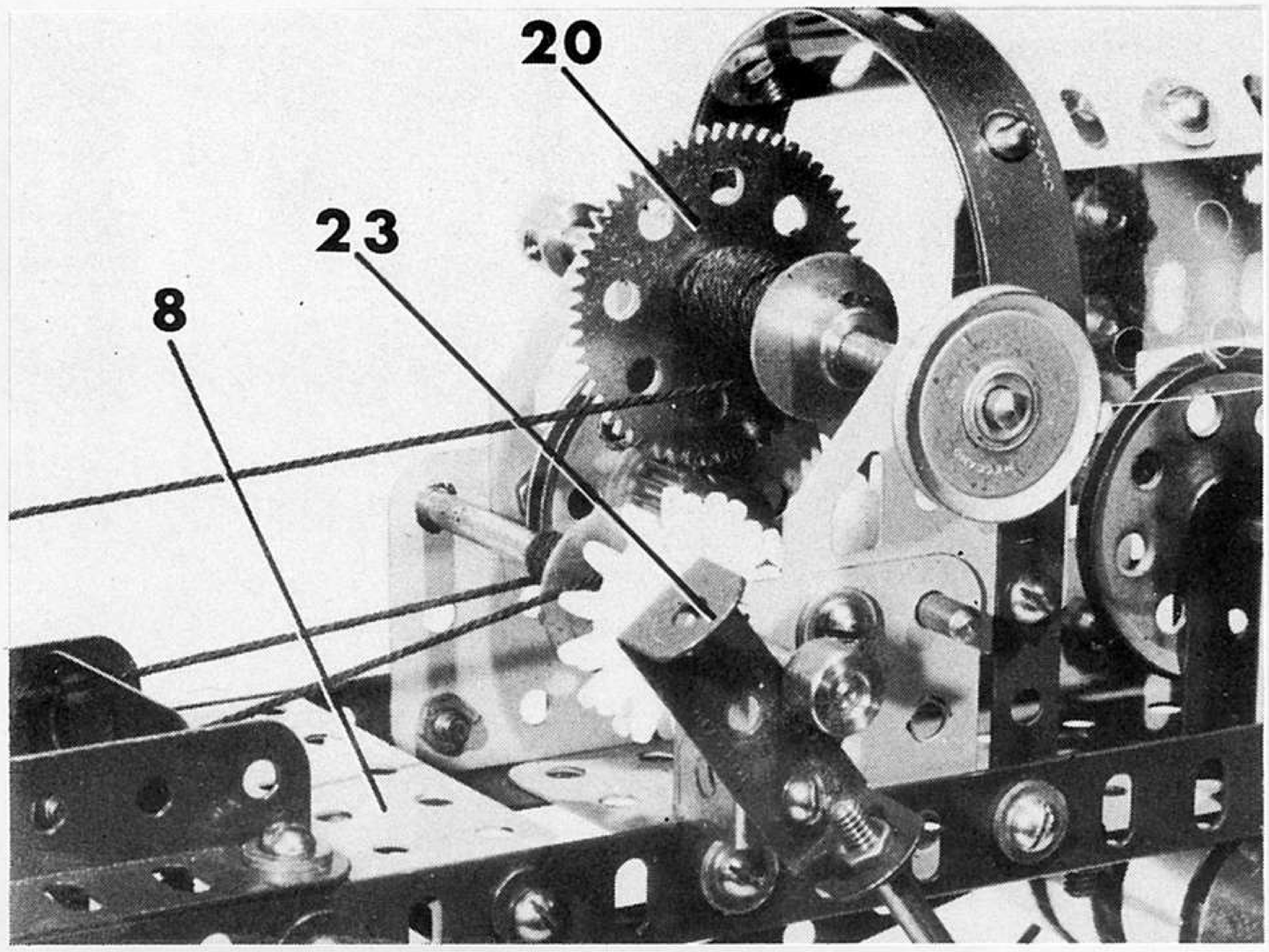
to engage the hoist and an external Collar at the other end is fitted with a standard Bolt, the head of which engages with the ½" stand-off Bolt shank when the barrel is in the 'braked' position.

A 3½" Rod runs in the top front holes of the 1½" Square Plates to act as the drive shaft for the crab trolley. The split cords are attached to the shaft in opposite directions and are separated by a ¾" Washer in the centre of the shaft. To make both engagement and disengagement positive, a gear shift lock is provided by a 1½" x ½" D.A. Strip 23 fitted with a Long Threaded Pin and pivotted, as shown, by a lock-nutted Bolt to a ½" x ½" Double Bracket bolted one hole up on the front edge of the 1½" square Plate. When operating the crab trolley, the shaft is pulled outwards to engage the pair of Multi-purpose Gear Wheels and the external Collar runs against the face of the D.A. Strip. To prevent general vibration from moving the shaft in the disengaged position, the lever is set vertically and traps the Collar on the far side of the D.A. Strip.

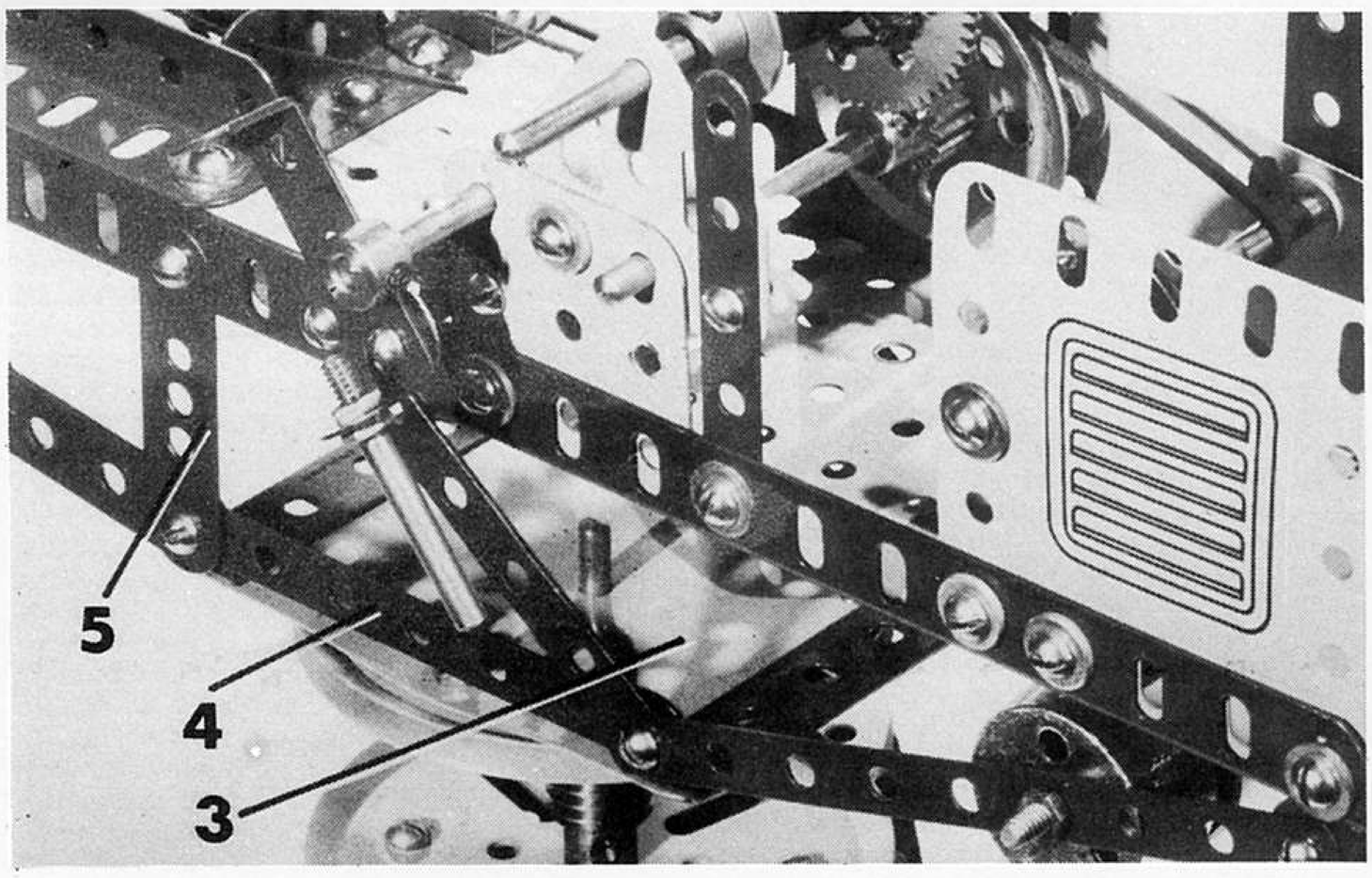
To enable operation at table-top height, a full hank of Meccano Cord is wound on to the hoist barrel and laced right through the hoist system, being anchored finally on a ½" Reversed Angle Bracket 25 bolted near the front of the boom as shown. This enables the load to be kept at constant height while the crab is moving.

ASSEMBLY NOTES

A 4" Axle Rod is fixed to the upper ⅜" Pulley under the boom and fitted with a Worm Gear to act as a spacing piece for the turntable. A loose 'sleeve' 26 is made from one 5½" x 1½" and one 2½" x 1½" Flexible Plate and is set between the 3" Pulleys. Careful adjustment of the Worm Gear is made to give minimum clearance between the sleeve of Flexible Plates and the Pulleys and then, below the Tower, the 4" Rod is fitted with a 1½" Contrate Wheel 27 to act as a hand wheel with which to rotate the boom. Details of the auxiliary rear hoist are clear from the various illustrations, sufficient sideways play in the 2" Rod being allowed to permit the Bolt shank fixed to the 6-hole Bush Wheel 28 to act as a brake when pushed inwards. This Rod runs in a pair of Reversed Angle Brackets bolted under the tail end of the boom as shown.

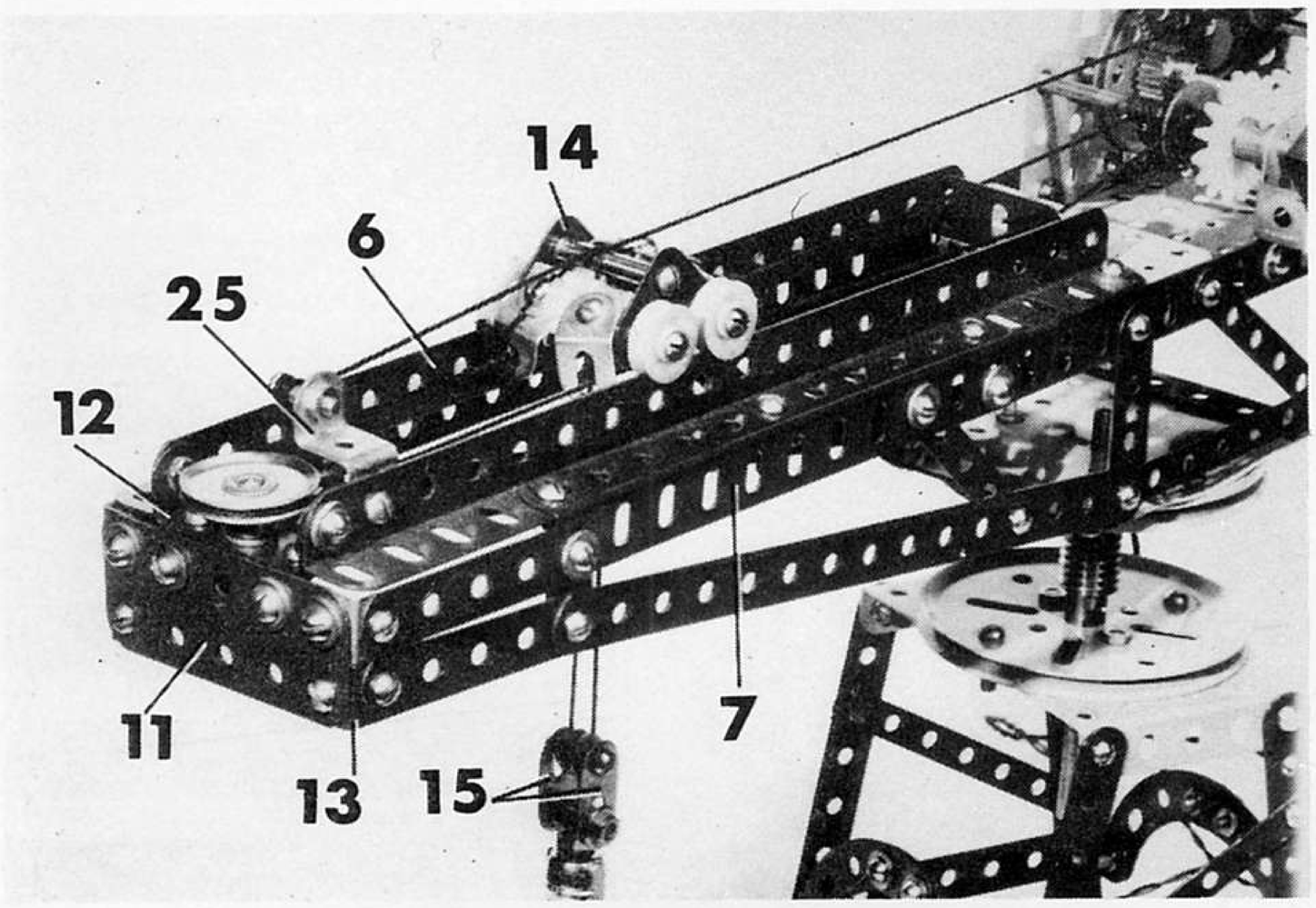


Driving mechanism for crab trolley showing gear-lock level in position to maintain drive to the trolley. Double Angle Strip 23 is locknutted to a ½" Double Bracket.



RIGHT: A further view of the hoist and crab drives showing reduction drives from motor. Note counterweight bar below rear boom carrying four Road Wheel centres.

BELOW: Details of forward end of boom, hookblock, crab trolley and boomhead pulley mounting. Note centralising of the hoisting cord.



PARTS REQUIRED

2-1b	2-21	4-48a	1-154a
4-2	2-22	2-48b	1-154b
4-5	4-23	1-51	1-160
2-6	1-24b	1-53	1-186
4-8a	1-26	4-59	1-186a
2-9	1-27a	12-69a	4-187c
2-9f	2-27f	1-70	2-189
4-10	1-28	2-74	2-190a
2-11	1-32	1-80c	2-193
1-11a	2-34c	1-81	3-194
6-12	4-35	4-90a	2-194a
2-12b	1-36b	2-103f	2-215
4-12c	110-37b	4-111	4-235
2-15b	150-37c	16-111a	2-235a
1-16	40-38	4-111d	2-235b
2-16a	2-38d	1-115a	2-235d
1-16b	2-40	1-125	
1-18a	2-45	2-126a	
2-19b	2-48	2-133a	

AMONG THE MODEL-BUILDERS



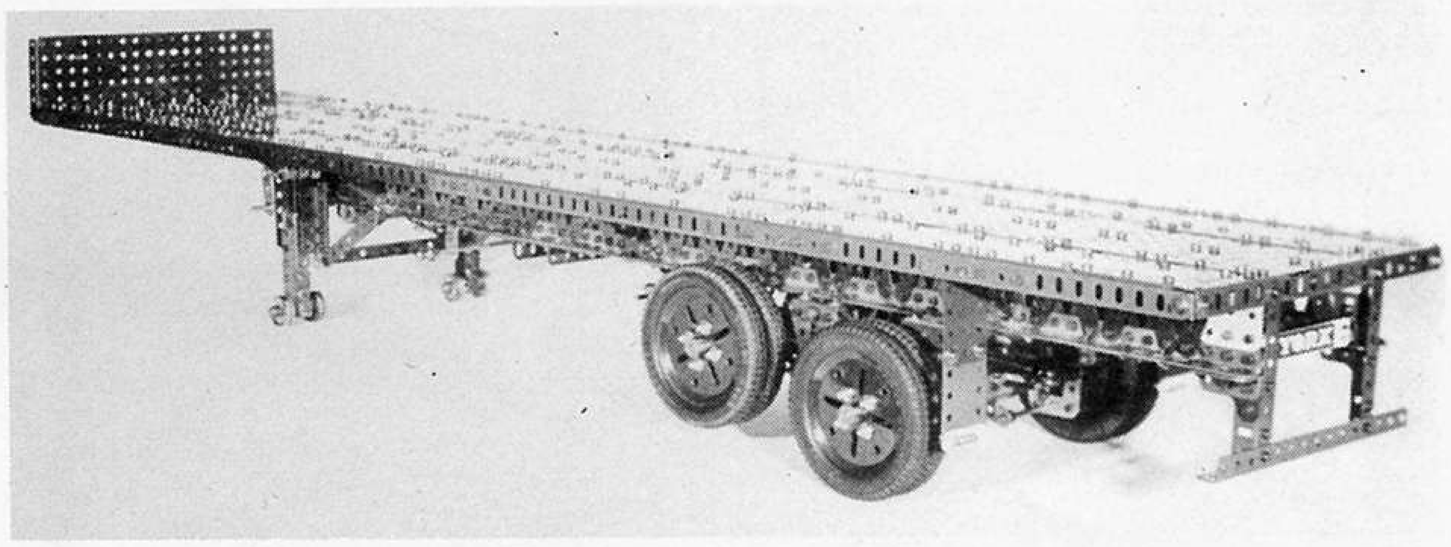
with 'Spanner'

YORK TRAILER

Some considerable time ago I received details from the York Trailer Company Limited of North Allerton of an excellent model of a York SL Teamster Platform Trailer built by retired haulier Alf Dean of Gosforth, Lincs. Unfortunately, the details supplied were sketchy, but I think you will agree from the accompanying photograph that the model speaks volumes for itself! Totally constructed from standard parts, it took over 500 hours to build and contains something in the region of 4,500 components, including 3,000 nuts and bolts. To authenticate the York castellated frame structure, each mainrail alone uses more than 300 components.

The project began when Mr. Dean visited a Commercial Vehicle Exhibition at Earls Court at which York were demonstrating their then new Hobo Lifting axle trailer suspension. Its construction attracted Mr. Dean and, following an hour with York's New Product Sales Manager, Gill Manssuer, plus a few more hours studying literature and drawings, he started work. 500 hours later he finished!

At the time the information supplied to me was prepared, Mr. Dean planned to follow up the trailer with an equally-detailed and fully operational tractor unit to the same scale. Perhaps it has now been built, and, if so, I would be most interested to hear about it.



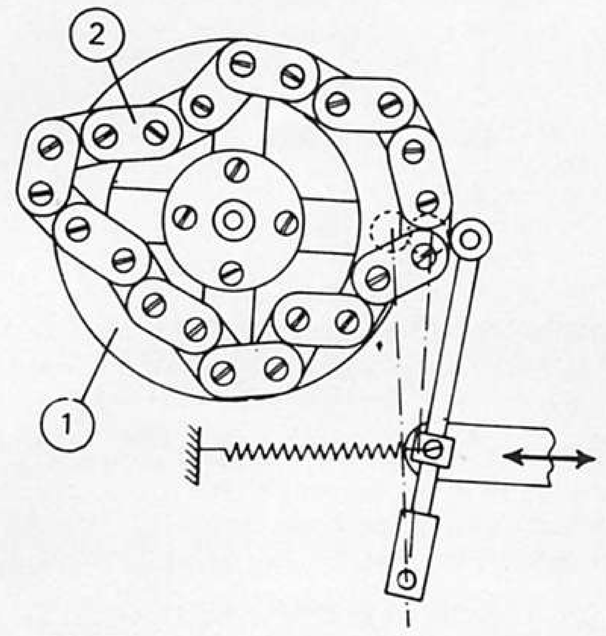
VARIABLE CAM

Reading through the September 1978 edition of the 'Midlands Meccano Guild Gazette', I was attracted by a design for a Variable Cam suggested by Mr. Colin Cohen of the Cape Town Meccano Club. It struck me that the mechanism could have some valuable uses, particularly to advanced modellers, so, with apologies to Gazette readers who have of course already seen the design, I reproduce it here for the benefit of the wider audience provided by our own readers.

To quote from the Gazette, the Cam makes use of that 'already useful component, the Fishplate when the Meccano Cam (131) is not suitable. Illustrated is (Mr Cohen's) suggestion for an infinitely variable cam. In this example, the spring-loaded lever will be moved by the cam to three different positions, thus permitting, say, forward, off or reverse.

'It is constructed on a base of a Gear Ring, or a circle or Curved Strips which is carried on a shaft rotating at a suitable speed. To this base, a series of Fishplates is bolted. They are then adjusted to suit the required mechanism, the edges of the Fishplates being the working surfaces.'

My thanks go to Roger Wallis, Editor of the Midlands Meccano Guild Gazette, for his permission to reproduce the above item from the Gazette.



MECHANICAL WALKERS

Meccano modelling, by the very meaning of the word 'modelling', is mainly concerned with reproducing objects or equipment existing in real life. I wonder, therefore, if Mr. Fr Dyk of Leek, Holland, can really be described as having been 'modelling' in his current project; he has been trying to reproduce, not a tangible object, but a natural phenomenon, namely the motion of walking.

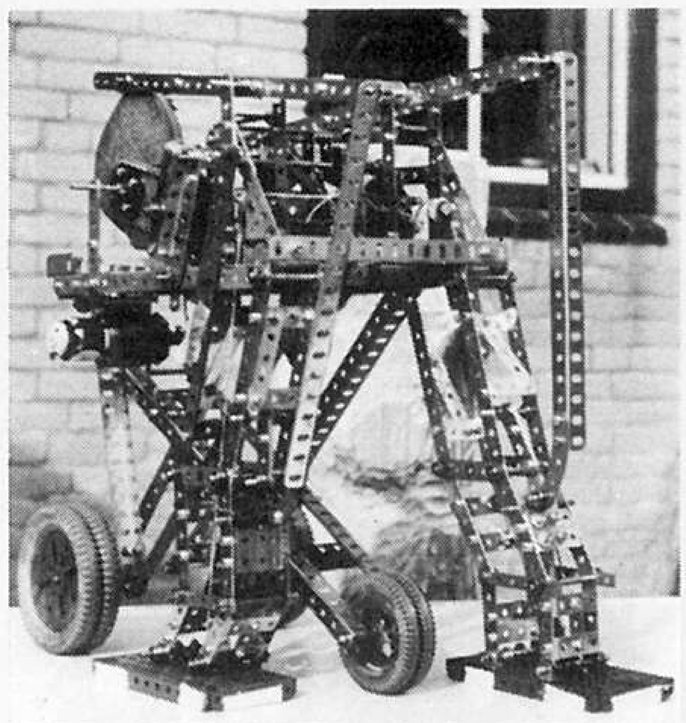
'About 4 years ago,' explained Mr. Dyk in a recent letter, 'I became interested in how man and animals walk, so I studied the run of my dog and observed the human walk, making some little designs on paper. I saw that the main points were the muscles and the joints in the legs and, of course, the co-ordination. Also, the equilibrium should not be forgotten.'

Mr. Dyk then set about reproducing the movements mechanically using Meccano parts. 'For the muscle action I chose eccentrics of different lengths,' he said, 'Transferring the action achieved to the legs by levers. However, after experimenting with a lot of other eccentric actions, I had to produce a special guide, the effect of which is to increase walking power and to return the leg quickly when it does not have contact with the ground. This gave me the first movement of the hip.

'I came next to the knee and underleg and to co-ordinate this with the hip was rather difficult. I tried a lot of combinations, producing at one stage a 'walking object' with six legs. At every step there were three wheels on the ground and three in the air, forwards.'

Dissatisfied with this for various reasons, Mr. Dyk next produced a model with only four legs with broader feet plates and the diagonal legs working together during walking to provide balance. Two diagonal legs provided support while the other two legs moved forward. After the four-legged model came a two-legged version which was refined in various ways, including the addition of a third joint, or ankle, to the stage shown in the accompanying photograph. 'With the additon of the ankles and the 'concertina effect' produced,' writes Mr. Dyk, 'The two feet, working alternately, land at 90 degrees to the ground with no excessive friction and no 'slide-back' as had happened with earlier experiments. As one foot leaves the ground, the other lands so there is always a leg on the ground at any time.'

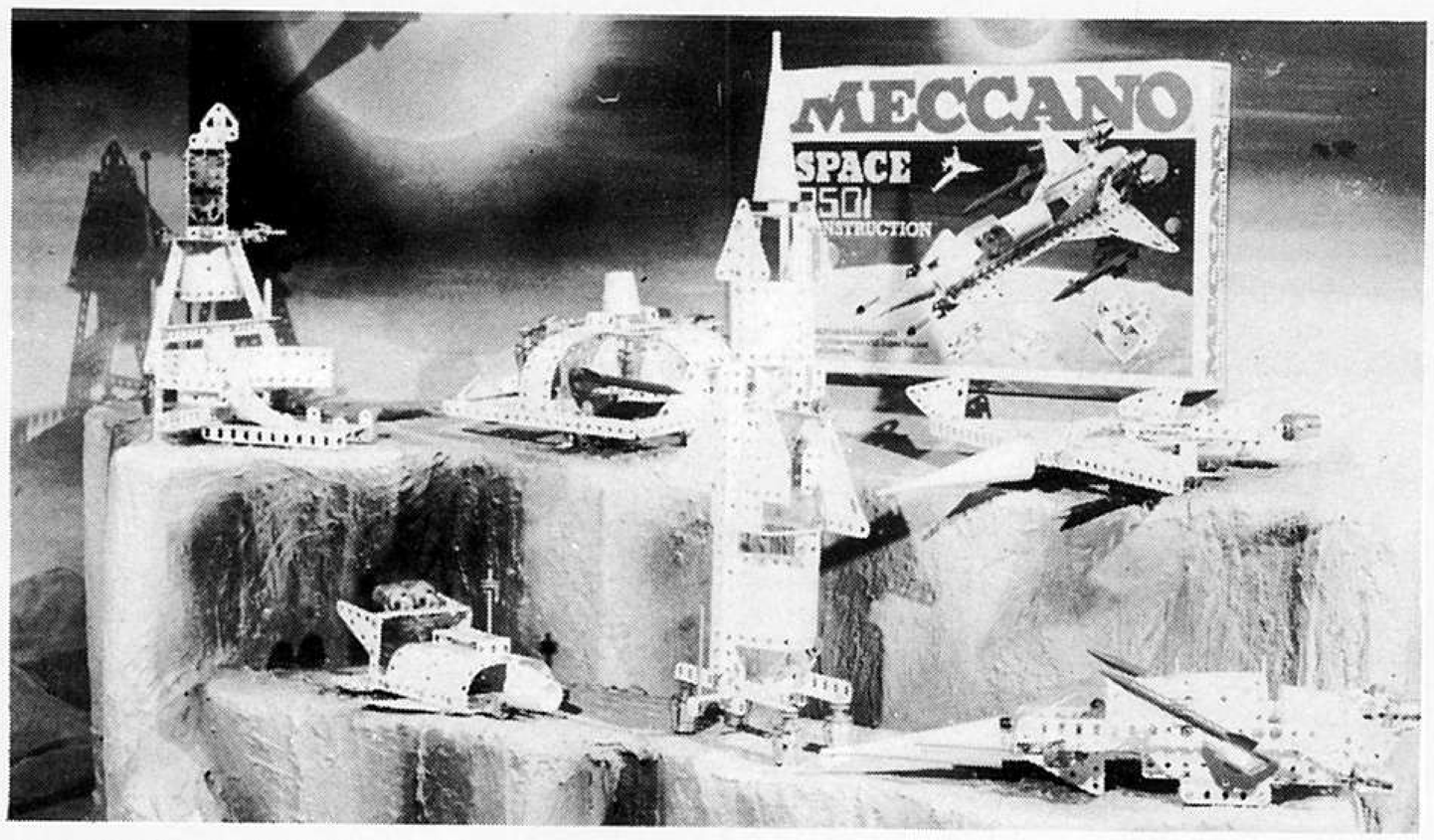
Mr. Dyk went on to say that, at the moment, the model still has only two legs, each one a unit in balance. 'In future', he added, 'I will try to make four legs and then have a walking subject with only legs, the supporting wheels then having disappeared.'



MECCANO at the TOY FAIR!

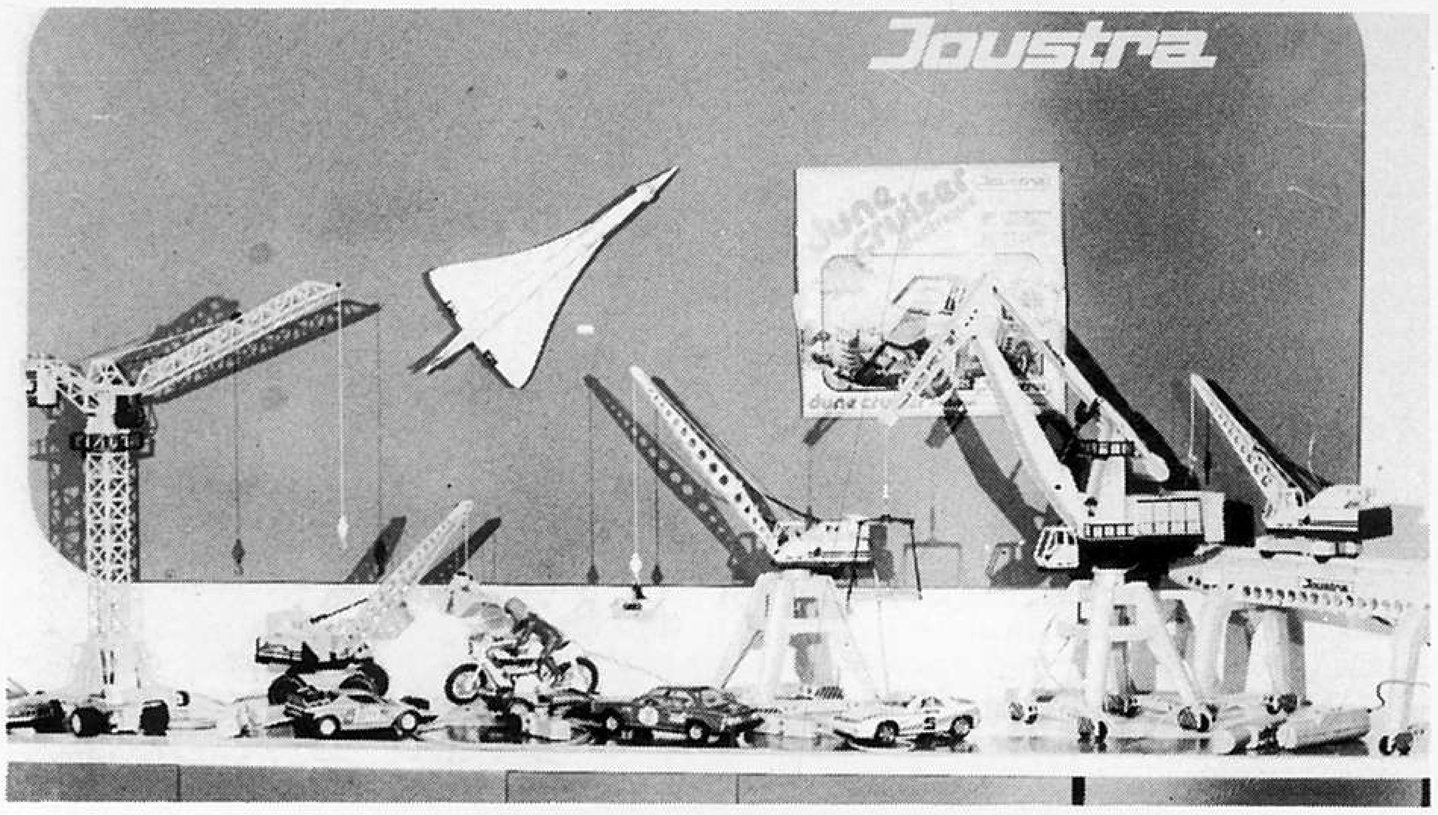


The Joustra 'Dune Cruiser', a rugged powered tinplate model 18'' long and 10'' wide with forward and reverse gears plus powered winch. A great favourite among customer and reps alike!



Latest kit 'SPACE 2501', the Meccano Set with special new components for making space vehicles and rockets.

A selection of excellent tinplate and plastic purpose-built remotely controlled toys by the Joustra toy company of France, now marketed in UK exclusively by Meccano Ltd.



ILLUSTRATED REPORT BY B.N. LOVE

TRADE buyers who visited the British Toy and Hobbies Fair at Earls Court, London, held in the last week of January, were met with an outstanding display of Meccano products on the second floor of the exhibition hall. Situated prominently and close to the entrance, the Meccano stand was a blaze of colour and movement displayed on some 1,000 square feet of floor space. Although the stand was 'enclosed', large open and glass fronted display walls enabled visitors to examine a wide range of Meccano products from both inside and outside the stand.

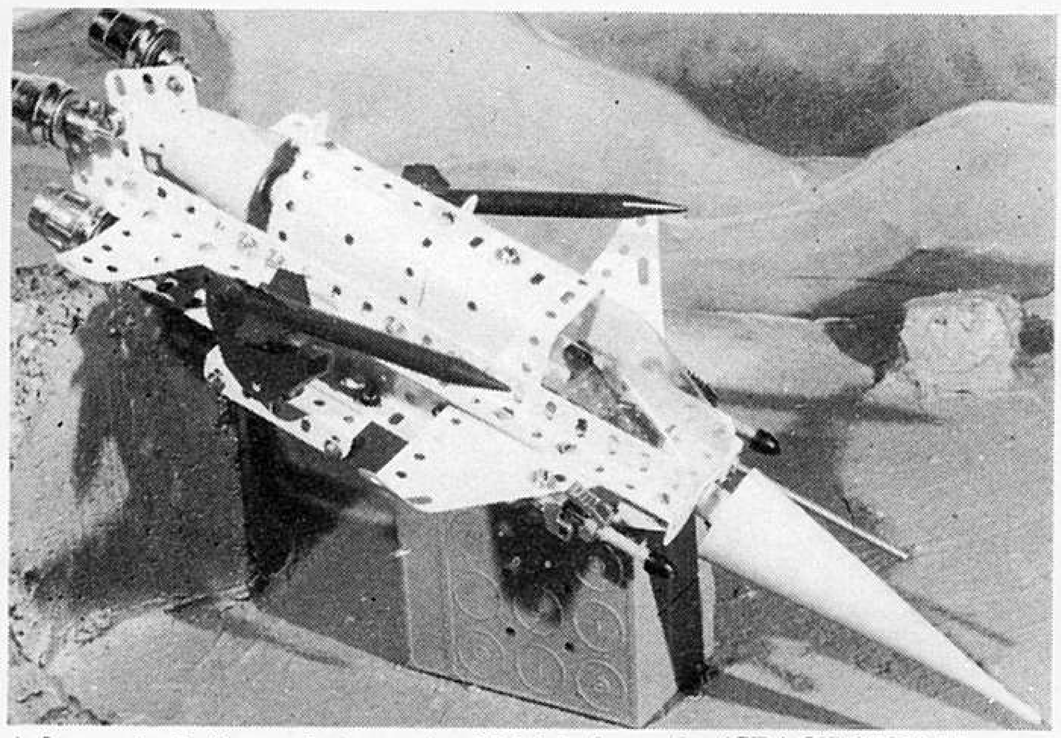
Dinky Toys decorated a large area of the vertical display spaces and featured the new ranges of cars, special vehicles and space craft. In the latest range, Dinky No. 364, Space Shuttle, is yet another finely detailed model in the space model series, the shuttle being carried on a launching rocket with detatchable boost rockets. Covers on the shuttle section are on hinges to reveal the internal module and other equipment. Customised cars are also introduced in the shape of two veteran style taxicabs and a Transit Van. Similar treatment is given to the Corvette Stingray while a welcome return to Dinky Racing Cars appears in No. 222, the Hesketh 308E. All of these, together with the general run of Dinky Toys, are fully illustrated in the Dinky catalogue No. 14.

New on the Meccano scene are the latest kits in the form of the 'SPACE 2501' outfit which will be on sale at approx. £8.95 and the 'MECCANOIDS Set' at approx. £10.95. Although only specimen sets are ready at the moment, production batches should be in the shops for June. All Meccano parts in the ''SPACE 2501' are finished in white and the sets include plastic nose cones, rocket motor cowlings and four firing rockets. This set will build rockets and launchers, flying saucers, lunar platforms, space pursuit vehicles, etc. A new feature for Meccano sets is the instructions for making pairs of models to give added play value post-construction.

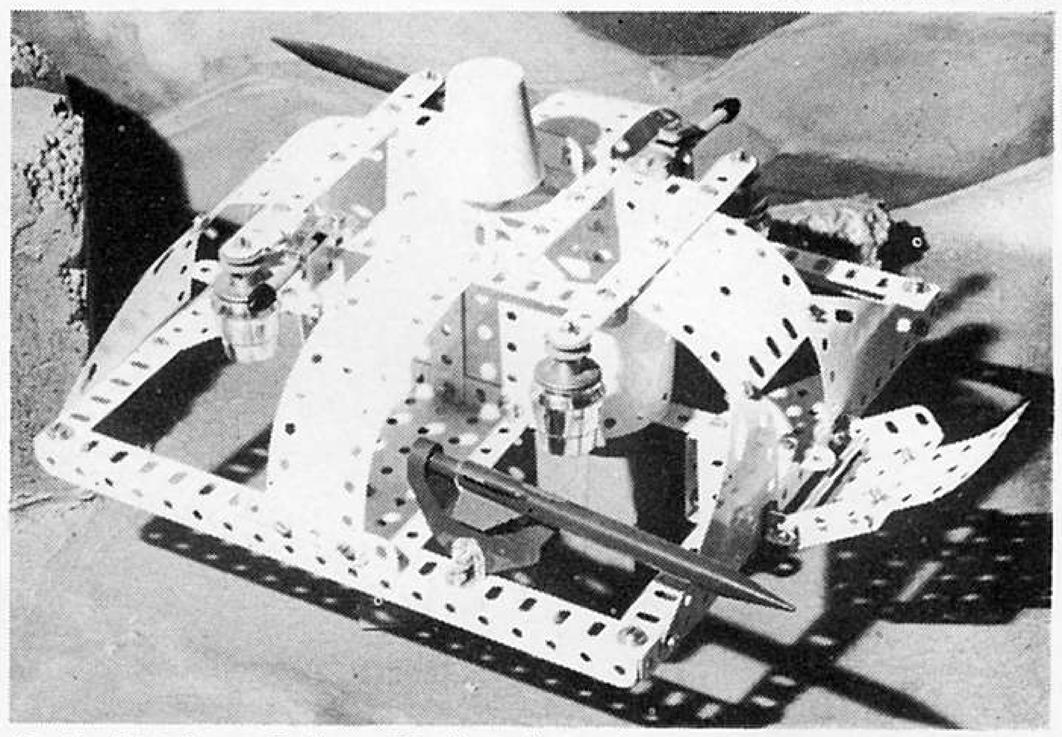
By complete contrast, the 'MECCANOIDS' are space creatures, all of which are motorised. Standard yellow Meccano Flexible Plates are included in the 'MECCANOIDS' outfits, but all strips, etc. are finished in brass. Many imaginative 'space creatures' were on display at the Toy Fair, each one driven by the Meccano 11053 electric motor, various motions such as crawling and grabbing being transmitted by piston motion from the small Bush Wheels and gear reduction parts provided in the set.

A departure from Meccano Ltd.'s normal practice of 'making its own' was in evidence on the Meccano stand in the form of a new range of purpose-built toys in plastics and tinplate from the French toy company, JOUSTRA. A sole agency for the U.K. has been negotiated by Meccano Ltd., Liverpool, and will be marketed by them alongside the normal range of Meccano products.

A range of remotely-controlled cranes, made largely in high quality yellow plastic material, is produced by JOUSTRA from a simple mobile crane to a level-luffing dockyard crane, with prices ranging from about £5 to £25. In addition, good tinplate toys of remote-controlled rally cars and sports cars, a motor-cycle and some less expensive friction drive cars were shown in the JOUSTRA section.



A four missile Space Interceptor Vehicle from the 'SPACE 2501' Meccano set.



Vertical jet Space Defence Platform from the new Meccano 'SPACE 2501' kit.



Two of the 'Creepy' models which can be built from the latest Meccano 'MECCANOIDS' outfit. All models in this set are driven by a battery operated motor.

Meccano sets in the latest colours were on display with samples of manual models and mechanisms built by various Meccano Club members. Gaily coloured models with rotating arms and coloured lights added sparkle to the stand and the whole effect was very pleasing. Although the physical erection of the stand is done by professionals, the decoration and display was carried out by a small team of Meccano executives and is a great credit to them. On top of this they had to prepare themselves and the Company's products for the larger International Toy Fair in Nuremburg which opened as the British Fair closed.

A real crowd-stopper was on display inside a huge window frame at the front of the Meccano Stand in the form of a giant Meccano Model of a billiard ball rolling display. Designed and built by Tony Rednall and Chris Goodwin with help from some of the members of the Solent Meccano Club, this model was almost 21 feet long, 6 feet high and nearly 2 feet in depth. At one end, a massive revolving arm driven through Large Toothed Quadrants by a mains motor, picked up billiard balls from a receiver at the bottom and carried them through an arc almost 6 feet in diameter to an inclined plane at the top of the model from where the ball ran through a series of programmed 'gates' to perform any one of a number of sequential gyrations, rising and falling by means of spiral chutes, funicular or 'switchback' rails and assorted filtering, rocking and jogging mechanisms. Balanced lifts and oscillating 'ladder' mechanisms processed the balls around the machine, the gates and traps being actuated by Meccano Solenoids to redirect balls into alternative channels. Damping rods on a simple weighted-lever principle checked accelerating balls at critical points when approaching sharp radius turns. Running excursions were extended internally by having tracks doubling back on themselves like zig-zag paths, remaining in a horizontal plane at the point of balance. but rocking very slowly by built-up cranks and push-rods to give onward motion to the balls.

Several snooker sets could easily be accommodation and there were enough independent tracks and gated routes to have most of the balls performing at different stages through the model. Illuminated by a mass of 12 volt Meccano Bulbs, the model required a dozen transformers to power these and the 12 volt D.C. circuits for the gate-operating solenoids. Several mains motors were required to actuate the various lifts, joggers, etc. but as the releases were triggered by the mechanisms at a particular point in their individual cycles, no synchronisation of the motors is essential although, in fact, CROUZET motors were employed at each stage.

Resplendent in an open latticework of simply hundreds of 24½" Angle Girders and Braced Girders in the latest Meccano colours, the model attracted so much attention that it was quite impossible to set up the camera or to get a clear photographic view of the Billiard Ball Machine. However, this fantastic model is destined to be on show in the Midlands during 1979 at a main Meccano dealer's where it will no doubt delight thousands of fascinated onlookers!

PROTOTYPES

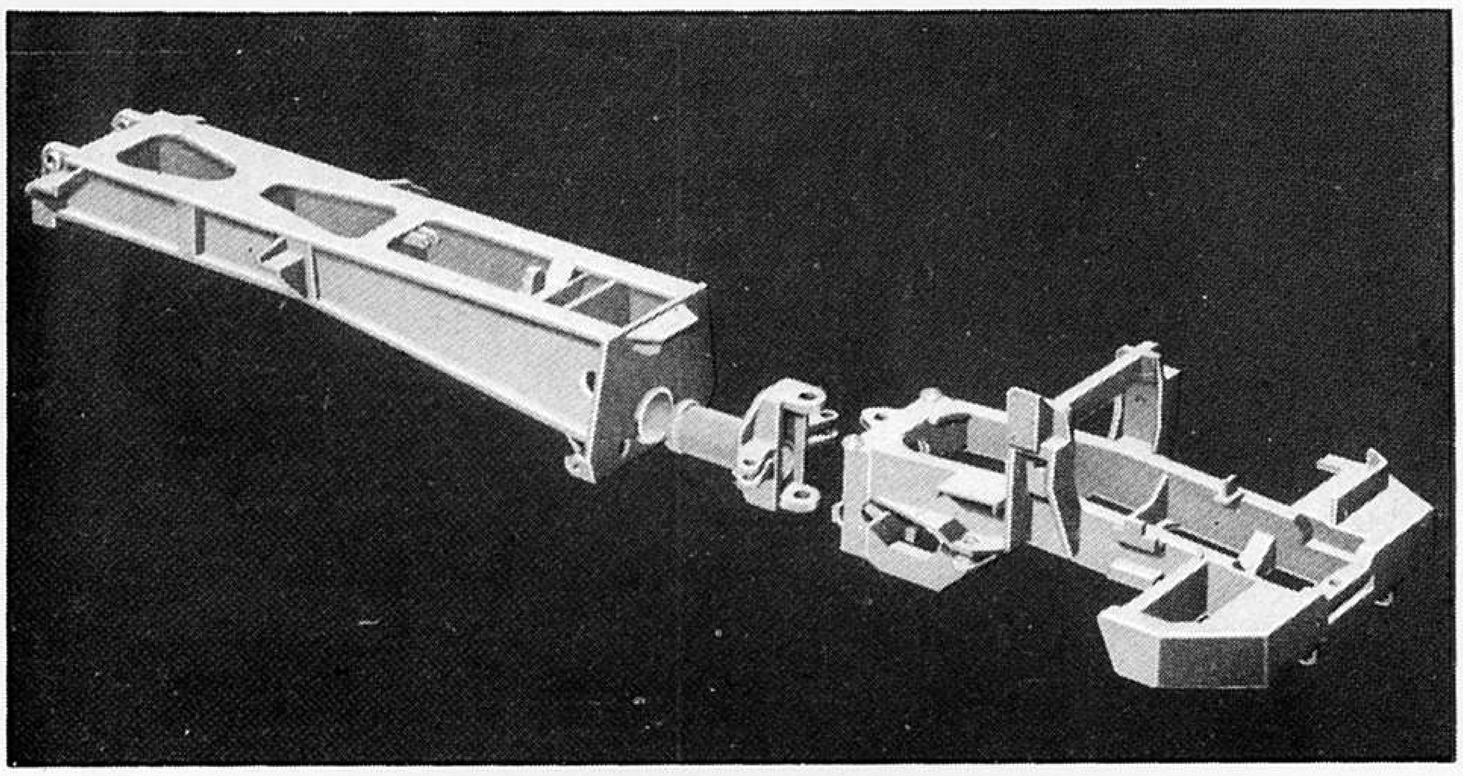
by Bernard Dunkley

Articulated Dump Truck D350



Figure 1: D350 Articulated Dump Truck

Figure 2: Chassis Construction of the D350



WHEN THE first of these articles appeared in an earlier issue of Meccano Magazine, I might have used the sub-heading 'Lift it', because the two subjects were both cranes. This time the theme of the article is 'Move it', because I am describing two pieces of equipment for transporting particularly heavy loads.

ARTICULATED DUMP TRUCK

The massive 'muck shifter' in Figure 1 is the DJB D350 Articulated Dump Truck. DJB Engineering Ltd. of Peterlee, Co. Durham makes a whole range of these dump trucks to carry loads from 27.5 tons to 55 tons. The D350 is an intermediate model, carrying 35 tons.

The cab and the front wheels form a separate unit that is fully articulated to the rest of the chassis, and the way this is done is shown in Figure 2. The heavy tube on the rear of the pivot bearing housing is located in a journal in the rear chassis frame to allow the loaded truck body to oscillate from side to side relative to the cab, and the vertical pivot points give the normal articulation effect. The horizontal pivots are for steering.

The drive, from a Cat 3408 turbocharged 450 hp diesel engine goes to the front wheels and to the front pair of the rear wheels via a propeller shaft and differential. The dimensionalised picture (Figure 3) shows the correct proportions and the body tilting geometry.

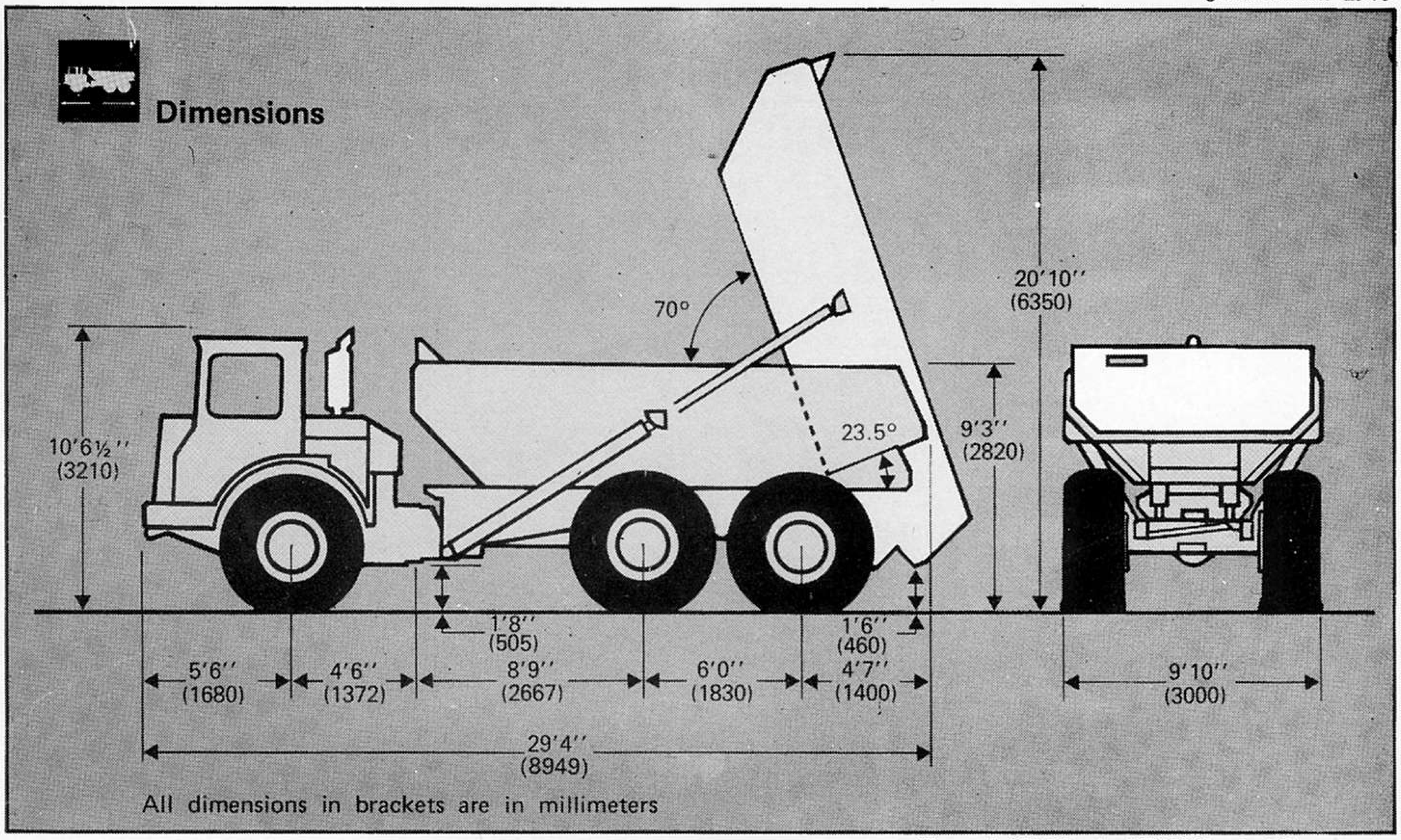
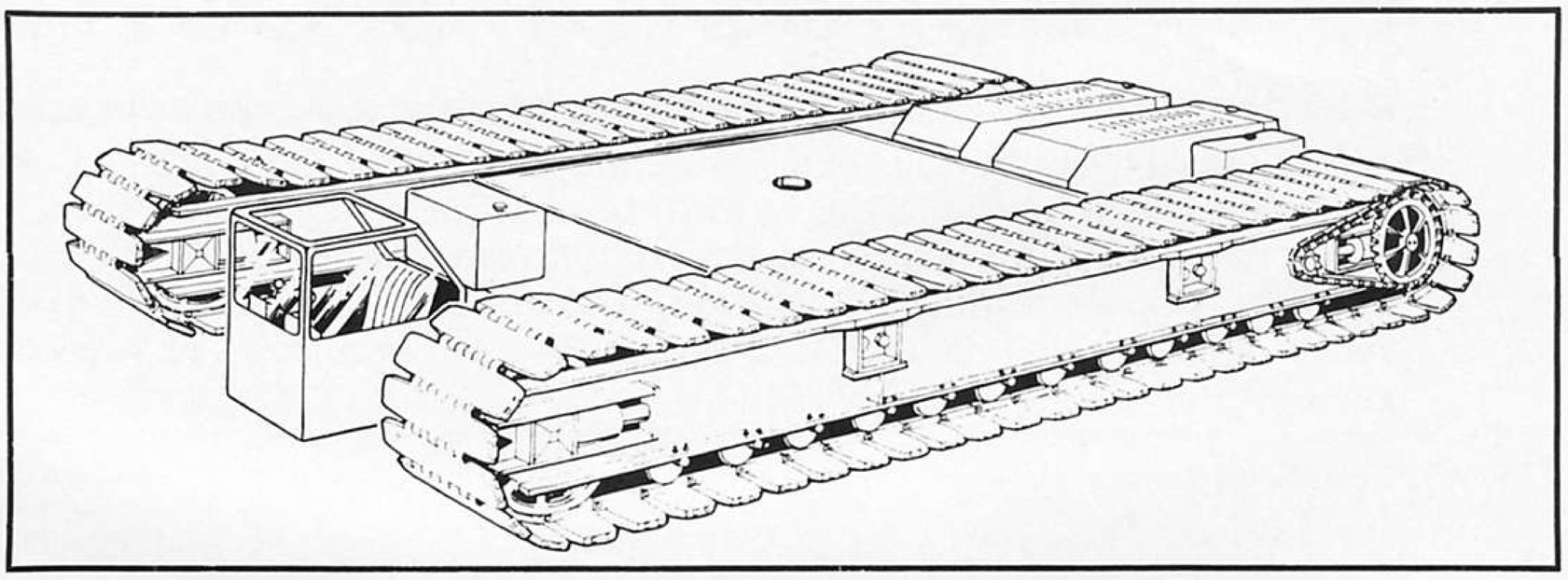


Figure 4: ITM-Rapier TT450 Tracked Transporter



TT 450

ITM-RAPIER tracked transporter

TRACKED TRANSPORTER

Figures 4 and 5 show the ITM-Rapier TT450 Tracked Transporter. It is built by ITM (Offshore) Ltd. of Middlesbrough, and it has an operating capacity of 450 tons. The manufacturers state that the development team behind the TT450 have used combinations of two, three or four of these transporters to move loads of up to 1500 tons.

Now for some technical details. The transporter is powered by two 8-cylinder, 90° V diesel engines that drive power pumps for two independent 5-cylinder hydraulic motors. From these, the power is taken to the tracks through integral epicyclic torque multipliers and heavy-duty chain final drives. The operator's cab is demountable and can be relocated for unusual loads. The full-load design speed is a reckless 1.18 km/h!

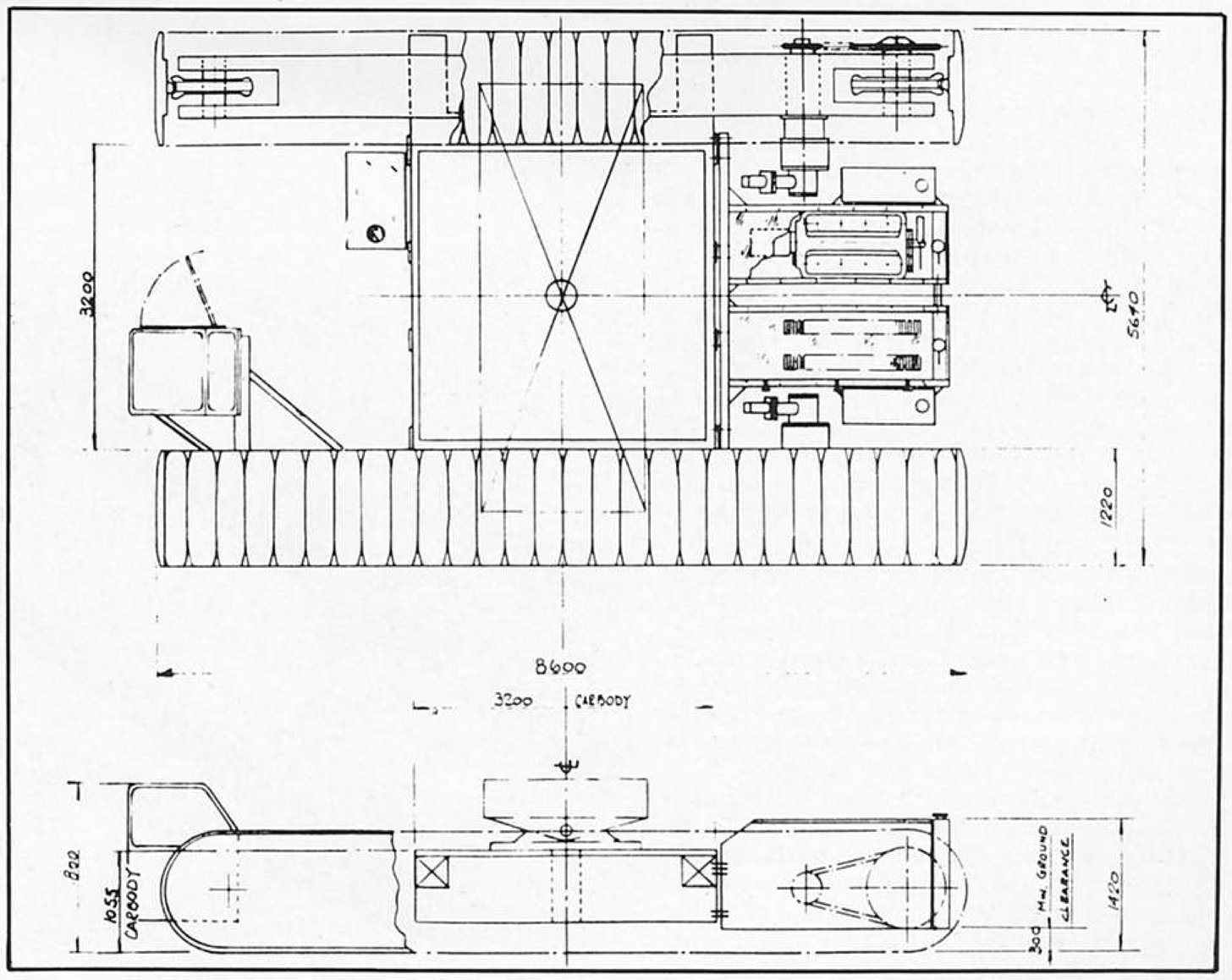


Figure 5: Principal dimensions of TT450 Tracked Transporter



Fig. 1, a book lid from the Number 00 KLIPIT outfit which first appeared in the 1920's. Note the 'Unisex' illustration of boy and girl, an approach which Meccano Limited tried briefly on their 1977 packaging, in modernised form of course!

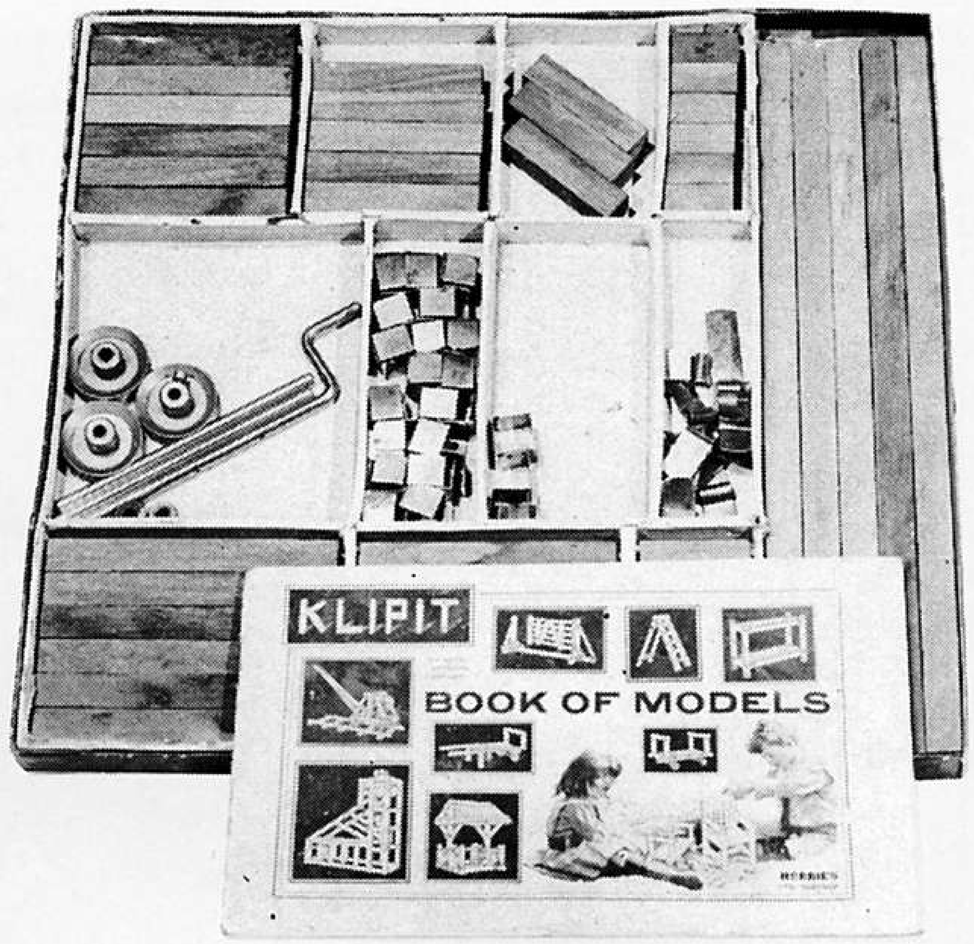


Fig. 2, the almost complete contents of the Number 00 KLIPIT outfit from which it can be seen that the major components are manufactured in wood. Nevertheless, there were still some parts which closely resembled Meccano originals.

collector's corner

AS mentioned in our last issue, Meccano has been much flattered over the years by imitation—which after all, is said to be the finest form of flattery. In October, we featured an early American constructional system which was clearly a close imitation of Frank Hornby's unique invention. Now, in this feature, Bert Love looks at a more recent British product which, although not a direct copy of Meccano, was almost certainly inspired by it.

Enthusiasts (writes Bert) whose memories can reach back to the 1920's or 30's will associate the 'Hobbies' company with fretwork sets and highly ornamental filigree workplans for fretwork picture frames, clock cases and simple toys made in plywood. The products of the company were well advertised in the Meccano Magazines in the 1920 to 1940 era and included among them were the 'Klipit' outfits, a sample of which, the OO Outfit, is featured here. With components manufactured predominantly in wood, the Klipit system was not an exact copy of Meccano, but the Meccano influence is immediately clear from the accompanying reproduction of an early Klipit advertisement which shows how closely the sets follow Meccano advertising styles of the period. The Klipit boy is obviously the next door neighbour of the 'Meccano Boy' of the same period and there is no mistaking the obvious choice of similar models, i.e. the Eiffel Tower and the Hammerhead Crane. Even Dad gets in on the act, and notice the 'unisex' feature of boy and girl interest on the box lid as shown in fig. 1. This, incidentally, adds weight to the old adage that 'there is nothing new under the sun' and at the same time shows that Meccano Limited is not always first with ideas. The Company tried this boy and girl combination on their 1977 packaging, only to have customer resistance from the boys who apparently did not want to be associated with a pastime shared by girls!

Referring to fig. 2, which shows the Number OO Klipit Outfit almost complete, it can be seen that a series of squared wooden bars ranging from 10" down to 1" were supplied together with simple clips, quite like a Meccano ½" Double Bracket, special rod clips, some pullies with boss looking suspiciously like Meccano 1" fixed Pulleys, two axle rods, collars and a crank handle. Although a ½" module was used for the squared rods (shades of Meccano again!) the rods and pullies were over large for Meccano sizes and hence were not compatible.

Perhaps the greatest advantage of the Klipit system was its ease and speed of construction,

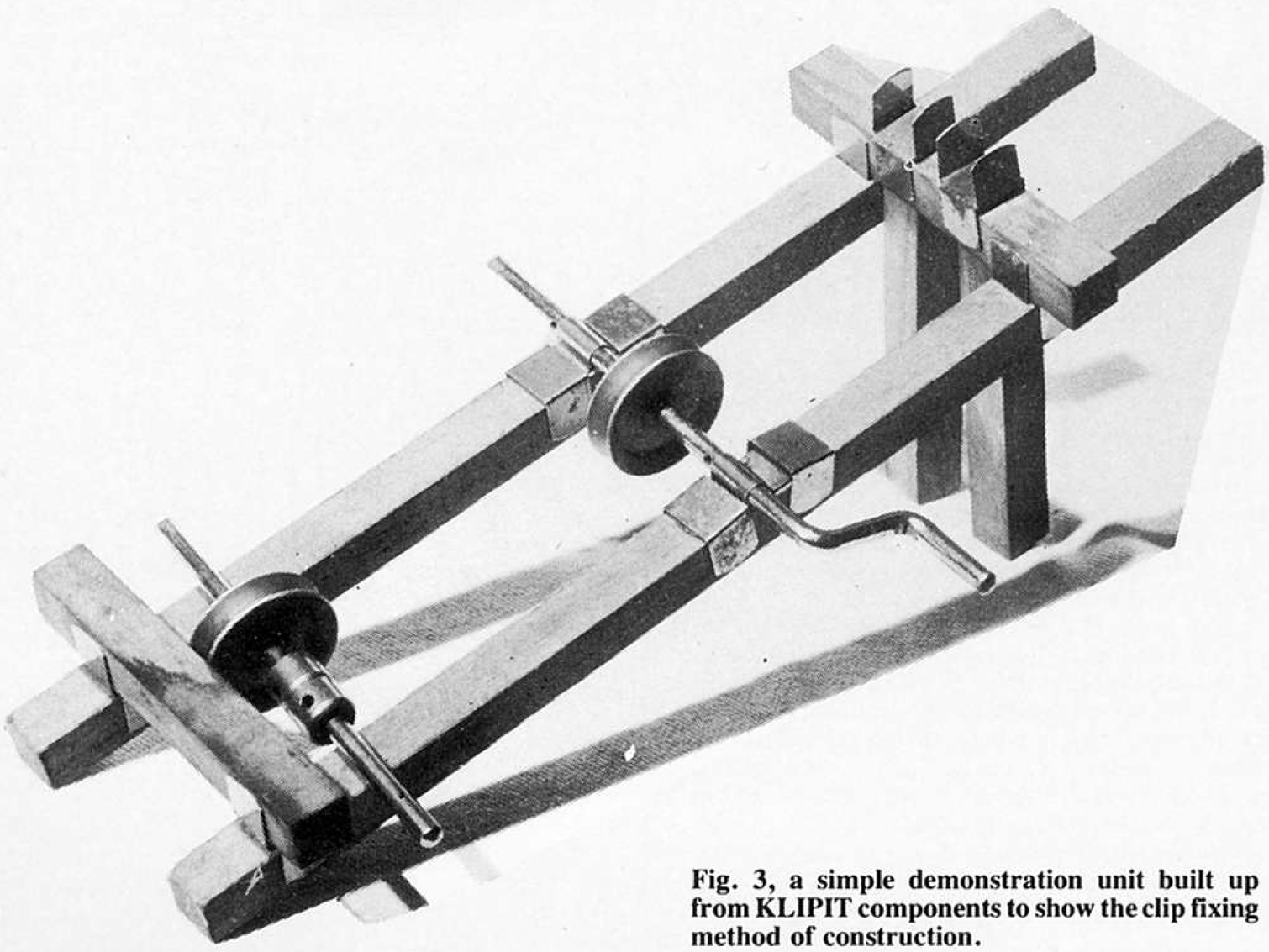


Fig. 3, a simple demonstration unit built up from KLIPIT components to show the clip fixing method of construction.

but there was very little rigidity, or permanence, about any of the finished models. Fig. 3 shows a very simple demonstration framework made from some of the parts in the outfit, but more elaborate models could be made with the larger outfits. The top set, being the Number 2, sold at a mere 10 shillings, with additional wooden and metal parts including a pair of gears. In fact, as fig. 4 shows, a whole range of mechanical parts were available in the system and one might think at a glance that a list of early Meccano parts was being displayed in the catalogue.

A book of models was supplied with each outfit and the first four pages of this were devoted to instructing the user on how to assemble the pieces with the different clips and special devices, great pains being taken to show each stage by sectional drawings. The larger outfits had wooden stock up to 18" long available in ⅛" and ⅜" thicknesses and it was thus possible to make up laminated sections of considerable strength, and to make up 'comb' joints and tenon joints in quite elaborate frameworks. However, the clipping method of construction was the downfall of the system, as one can imagine, and the sets had a comparatively short life-span in the second half of the 1920's and for a while in the 1930's. Not long compared to Meccano's seventy-odd year existence!

The author would like to express his indebtedness to Eric Hargreaves of Burnley, England, for his kindness in donating the OO Klipit outfit to his collection.

Right, a reproduction of an early KLIPIT advertisement in which enthusiasm is obviously an important factor! There is a market similarity to the Meccano advertising of the period.

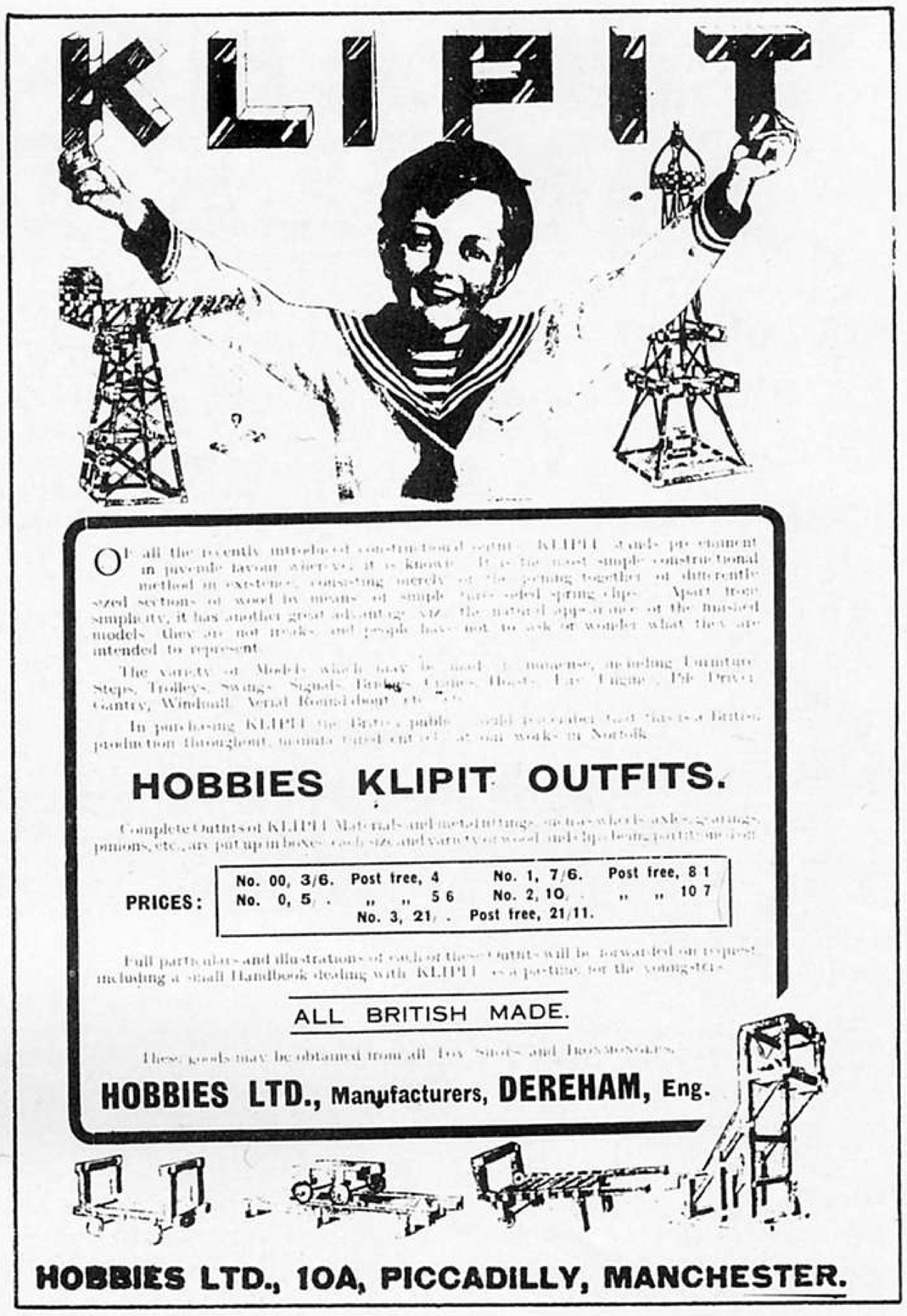
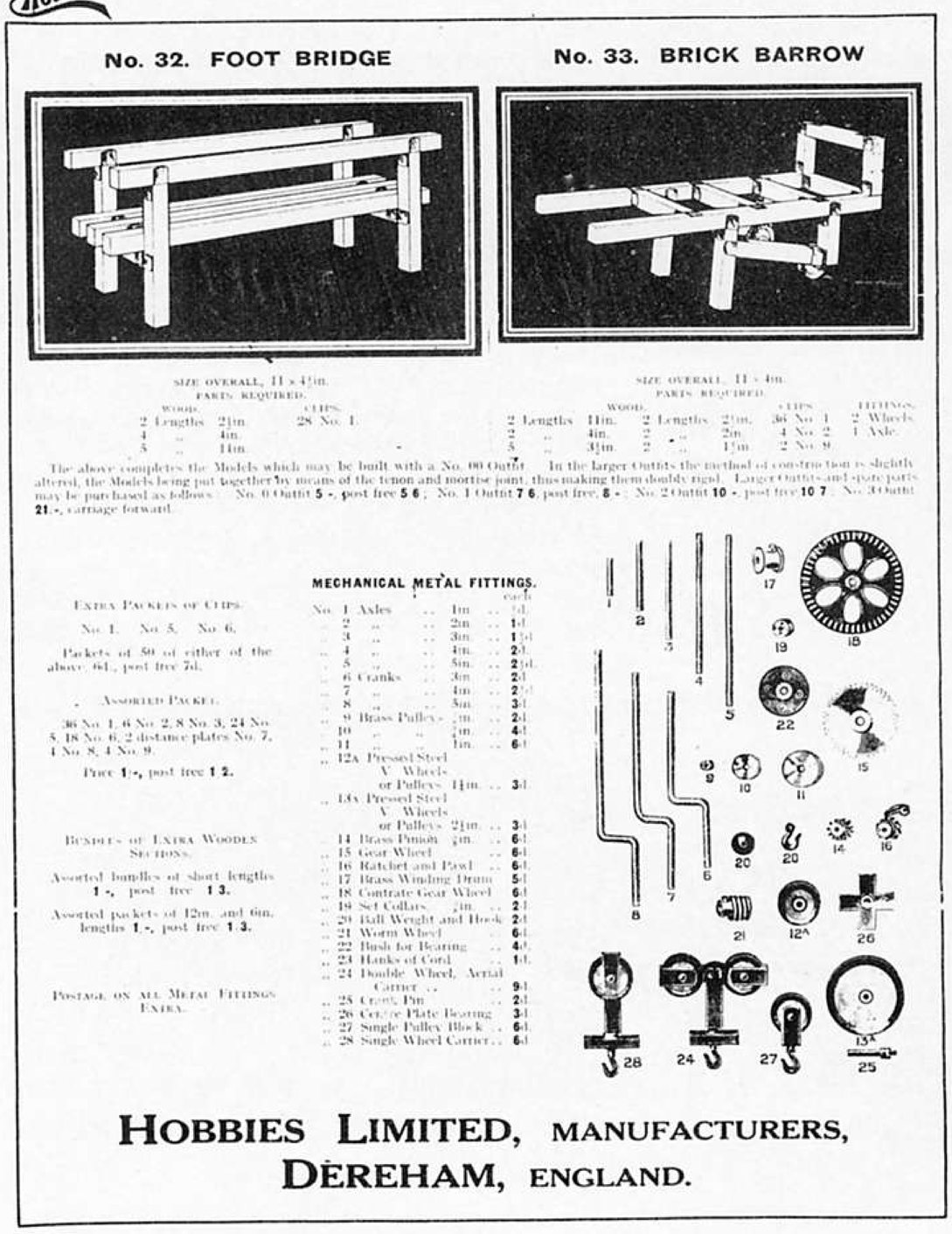
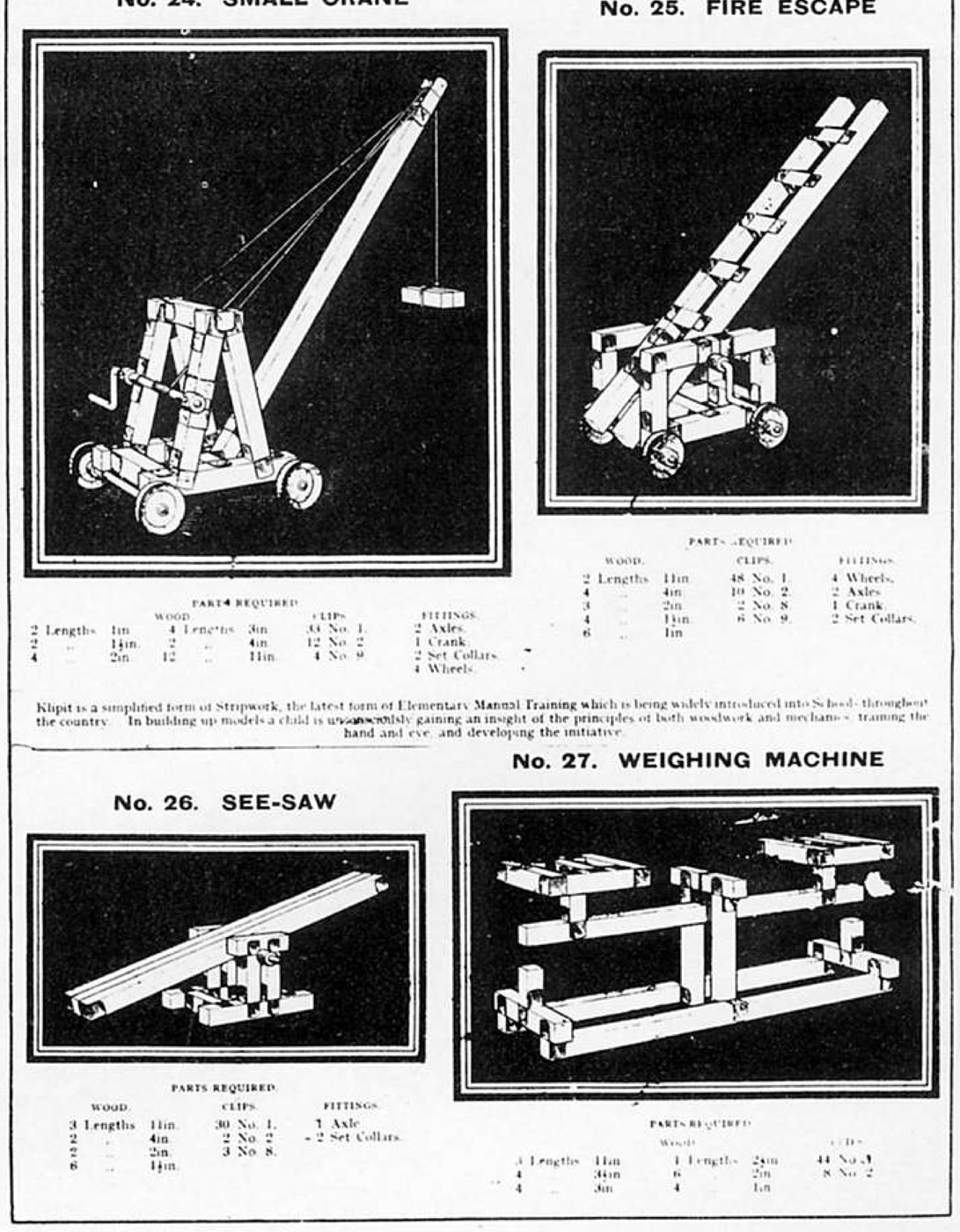


Fig. 4, reproduced from original Hobbies publicity, a surprisingly comprehensive list of mechanical parts available in the KLIPIT range. Note particularly the gears, worm and pulley blocks.

Below, reproduced from a KLIPIT manual, some typical examples of models built with the 00 outfit.

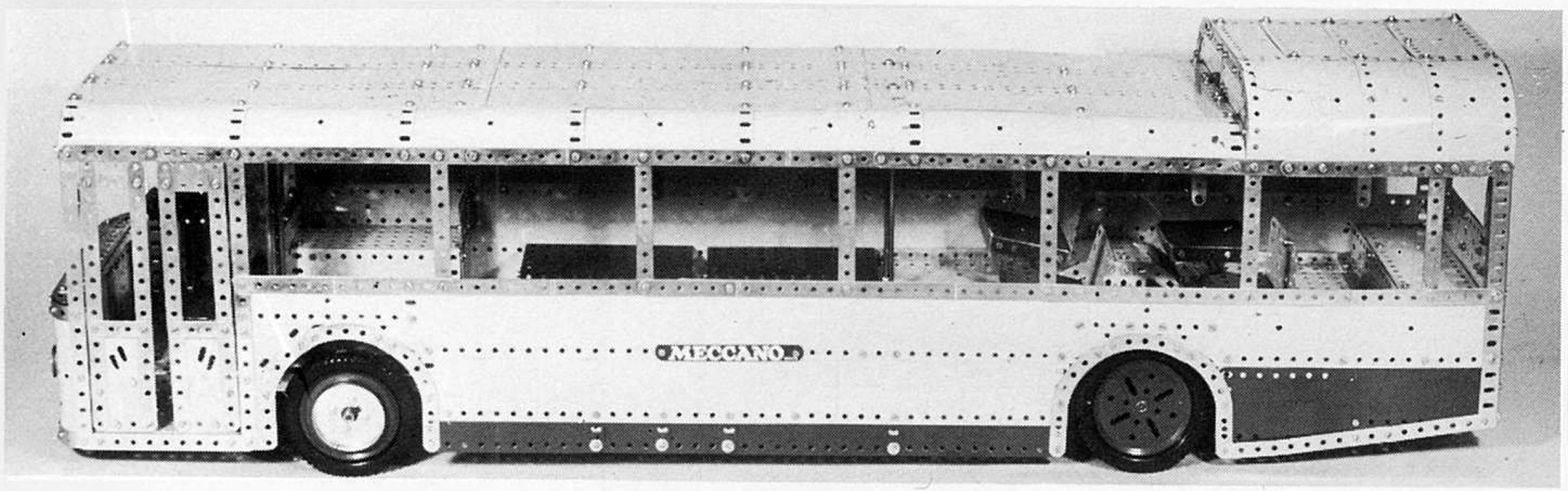




LEYLAND NATIONAL SINGLE-DECK BUS

Part 1 of a new No. 10 model designed and built by ROGER WALLIS

JUDGING by the interest aroused at Meccano exhibitions by any public service vehicles on display, model buses hold a universal appeal. Indeed, the Double Deck Bus featured in the current No. 10 leaflet is one of the most popular models in the series. It must be admitted, however, that that particular model is based on a now-outdated prototype and we therefore felt it was about time the No. 10 Set scene was brought up to date. So here we feature a distinctly modern Single Deck Bus. Built by that well-known and advanced modeller, Roger Wallis of Solihull, Editor of the Midlands Meccano Guild Gazette, it is based on a Leyland National—a vehicle now widely used by operators all over Britain.



CHASSIS

Beginning construction with the chassis, this is ridgidly constructed from two 31" channel girders 1, each built up from a 24½" and a 5½" Angle Girder bolted to an 18½" and a 12½" Angle Girder, the 18½" Girder of the channel projecting two holes rearwards beyond the end of the 5½" Girder side of the channel. The two channel girders, positioned nine holes apart, are connected at their front end by a 7½" Angle Girder 2, bolted through the 6th and 14th holes of this Girder. Note that the channel girders are positioned with their flanges pointing inwards.

Towards their rear ends, the channel girders are connected by a 5½" Strip 3 (13 holes from the rear ends of the girders), a 4½" x 2½" Flat Plate 4, another 5½" Strip 5 (three holes from the end of the girders) and a 4½" x ½" Double Angle Strip 6. Note that Strips 3 and 5 project one hole outwards from the girders and bolted to these projecting ends are two 18½" channel girders 7, each built up from two 18½" Angle Girders. These channel girders are connected together by three pairs of 5½" Strips 8, 9 and 10 attached to the girders by Angle Brackets inside the channels of the girders. These Strips will later form the bearings for the Rods of a 2-speed automatic gearbox.

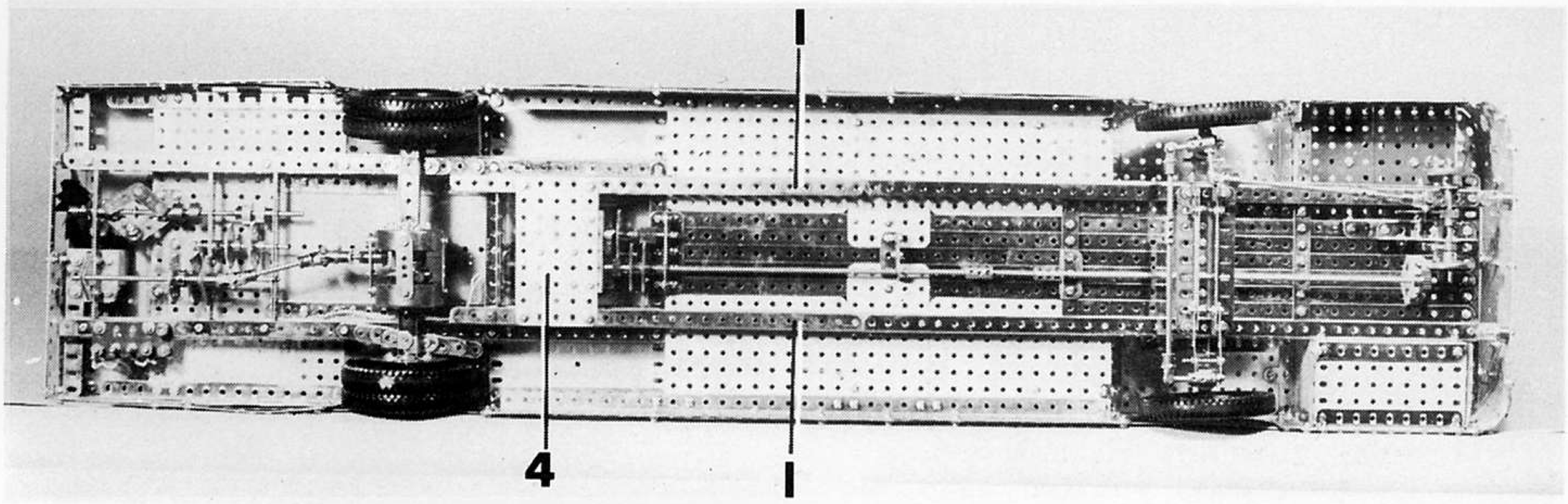
Before coming to the gearbox, however, it is advisable to complete the floor of the bus. Working from the front, this is provided by six longitudinal 12½" Strips positioned between the channel girders and bolted to Angle Girder 2 and to two 4½" x ½" Double Angle Strips 11 and 12 running between the channel girders. Note that a gap the width of one Strip is left alongside the right-hand channel girder to later accommodate a gear wheel of the steering mechanism. Further back, this space is enclosed by a 7½" Strip running between Double Angle Strips 11. Further back still, five more 12½" Strips are bolted to Double Angle Strip 12, their rear ends being attached to Strip 3 by a 2½" Flat Girder, the securing Bolts also fixing a 2½" Angle Girder 13 to Strip 3. The centre section is enclosed by four 5½" x 3½" and two 4½" x 2½" Flat Plates, arranged as shown.

The rear section of the floor is raised an inch or so above the level of the centre section and is not in fact attached to the chassis members. It is actually later fixed in position by being secured to the sides of the bodywork, but it is as well to construct the floor for fixing in due time. It is built up from two overlapping 12½" Strip Plates 14, edged underneath by 12½" Angle Girders and extended five holes outwards and six holes rearwards by two 5½" x 3½" Flat Plates with a 5½" x 2½" Flat Plate between them. The wheel arches are each enclosed by two 2½" x 2½" Curved Plates joined by a 2½" Flat Girder, while the forward section of the floor is extended outwards at each side by a 5½" x 2½" Flexible Plate 15. Bolted to the outer edge of this Plate is a 5½" Angle Girder, while a 7½" Angle Girder is bolted to the outer edge of the corresponding 5½" x 3½" Flat Plate. The 7½" Angle Girders at each side are connected through their fourth holes by a 9½" Angle Girder 16, to which the three Flat Plates are connected by a 3½" Flat Girder. Bolted to the top forward ends of Plates 15 and the Strip Plates and to the front ends of the 5½" Angle Girders edging Plates 15 is a 9½" Angle Girder.

In due course, the floor is attached to the body by means of the side 5½" and 7½" Angle Girders.

Returning to the front of the model, the driver's floor is supplied by two 3½" x 2½" Flanged Plates 17 attached to the right-hand longitudinal 12½" Strip by a 3" Angle Girder bolted to the inner flanges of the Plates. At the other side of the model, the access step is provided by a 4½" x 2½" Flat Plate edged by two 4½" Angle Girders, the inner one of which is

A general underside view of the model.



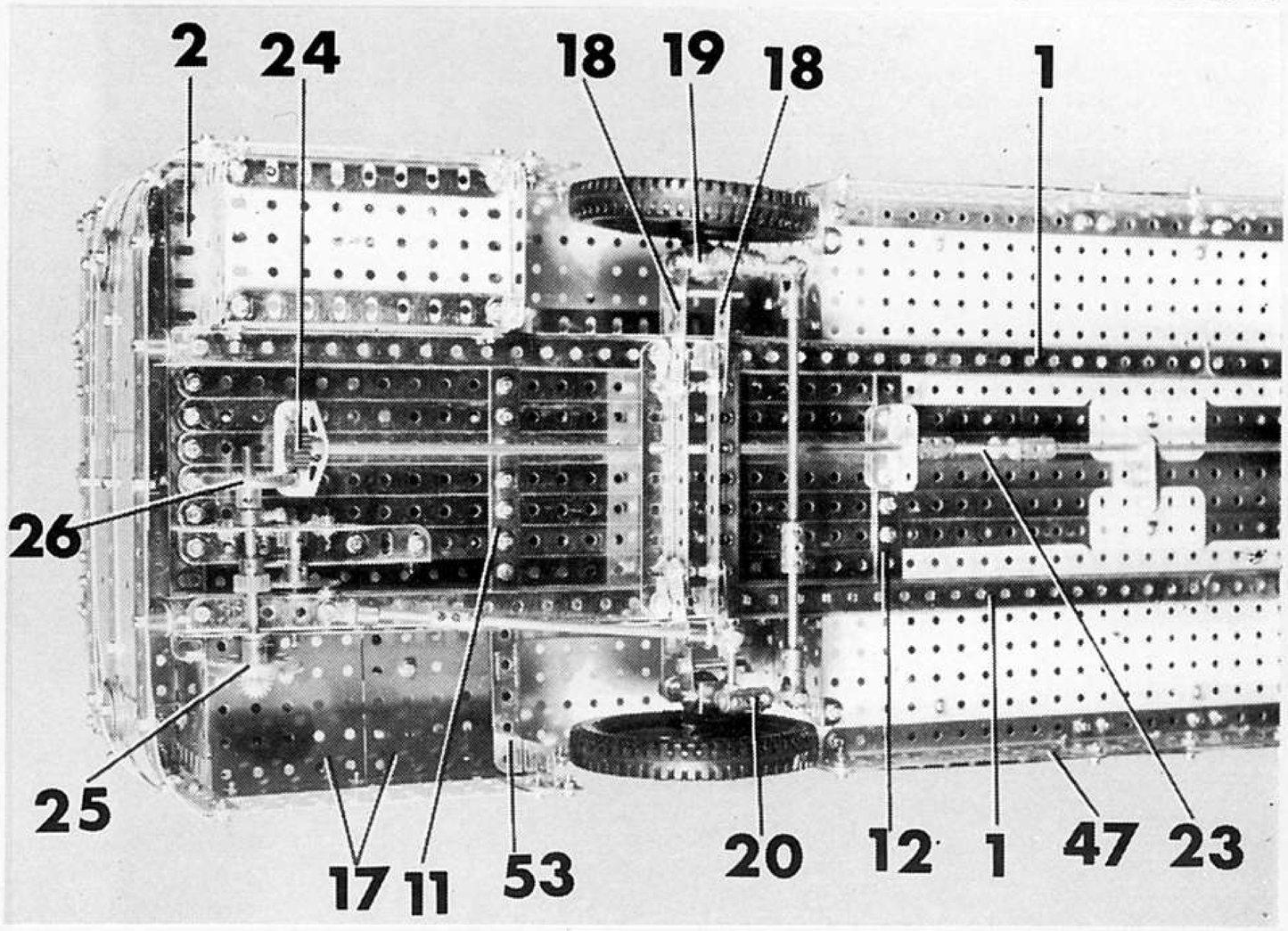
bolted to a 4½" Flat Girder which is in turn bolted to the left-hand chassis member.

FRONT AXLE AND STEERING

Indicative of its status as an enthusiast-designed advanced model, the bus is fitted with working front suspension and remote powered steering. The front axle is built up from two 4½" Angle Girders bolted through the 16th and 18th holes of chassis members 1. Lock-nutted through the second holes from each end of these Girders are two 2½" Strips 18, firmly connected together through their second holes by Nuts on a 1⅛" Bolt. Pivotting on lock-nuts in the end holes of the Strips is a Large Fork Piece 19, in the boss of which a 2½" Rod, free to turn, is carried. The upper end of this Rod locates in the end hole of a 7½" Strip bolted to the chassis members and on the Rod, between the Strip and Fork Piece, are mounted in order, a Washer, a Compression Spring, a second Washer, a Handrail Coupling, a third Washer and a ¾" Washer, the latter locating against the lugs of the Fork Piece. Note that the Rod passes through the round head of the Handrail Coupling which is locked on the Rod. The Rod is held in position by a Collar above the Strip and a Coupling 20 below the Fork Piece. A 1" Rod carrying an End Bearing is locked in the longitudinal bore of this Coupling, the End Bearings at each side being connected by a tie-bar provided by a 2" and a 4" Rod connected by a Coupling.

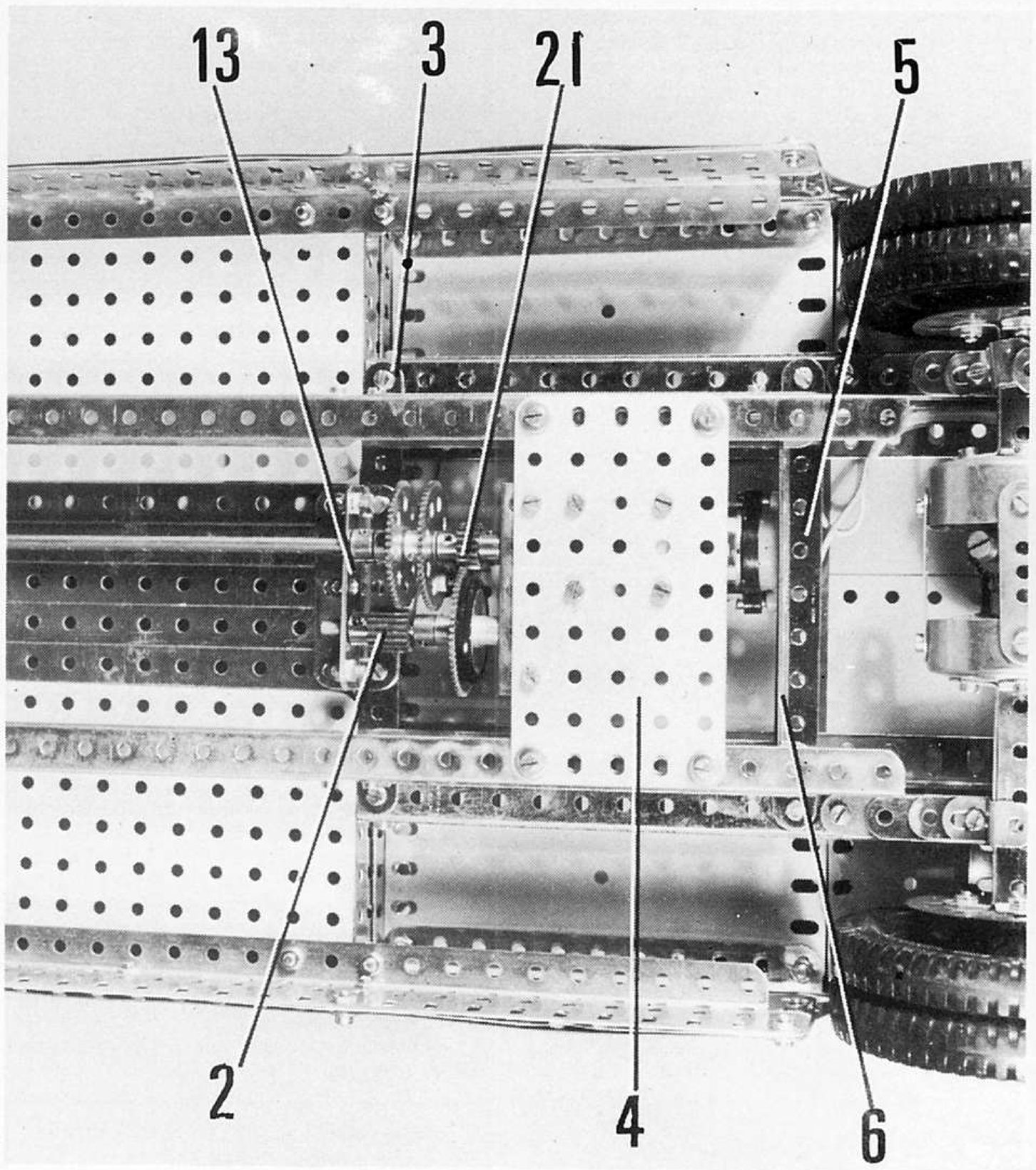
Carried in the base of the Handrail Coupling is a 1" Rod on which the front wheel, free to turn, is mounted. Each front wheel consists of a 3" Pulley with Motor Tyre bolted to a Wheel Flange, and it is held on the Rod by a Collar.

In the case of the power steering, this is driven from a Power Drive Unit set in the 32 : 1 ratio and bolted to Flat Plate 4. A 2½" Angle Girder is bolted to the forward end of this Flat Plate, while a 2½" Strip is bolted to the vertical flange of the previously described 2½" Angle Girder 13 to convert the elongated holes of the Angle Girder into circular holes. Journalled in this Strip and the Angle Girder bolted to the Plate are a 2½" Rod and an 11½" Rod, the latter also supported in a 1½" Strip overlaying the vertical flange of a 1½" Angle Girder bolted to the 4½" x 2½" Flat Plates of the centre floor section.



An underside close-up view showing the automatic gearbox and drive to the rear wheels.

A close-up view of the power steering motor fitment and initial gearing.



Fixed on the 11½" Rod between the 2½" Angle Girders are a Collar, a ½" Pinion 21, two 57-teeth Gear Wheels and another Collar. Mounted on the 2½" Rod are a fixed 1" Pulley with Rubber Ring, a loose 57-teeth Gear Wheel, a Collar and a ½" x ½" Pinion 22. Although the Gear Wheel is loose on the Rod, it is held tightly against the Rubber Ring on the Pulley by the Collar, this arrangement providing a friction clutch to protect the motor if the steering locks.

A ½" Pinion on the motor output shaft meshes with the first of the 57-teeth Gears on the 11½" Rod, while the second 57-teeth Gear on the Rod meshes with Pinion 22 on the 2½" Rod. The 57-teeth Gear on this Rod meshes with Pinion 21. The 11½" Rod is connected by Couplings and a Flexible Coupling Unit 23 to another 11½" Rod journalled in a 1½" Angle Girder bolted to the floor and supported at its forward end in a Trunnion bolted to the 12½" Strips of the floor. A ¾" Pinion 24 on the end of the Rod meshes with a 1½" Contrate Wheel on a 3½" Rod journalled in two 1" Triangular Plates, one of which is bolted to the right-hand chassis member and the other of which is bolted to a 3" Angle Girder secured to the 4" Angle Girder holding Flanged Plates 17.

Between the Contrate Wheel and the Triangular Plate is a Collar in which a ½" Bolt is fixed to provide a 'stop' which limits the movement of the Rod to less than one revolution. A second 1½" Contrate Wheel 25 is fixed on the other end of the Rod to later receive the drive from a manual steering wheel in the driver's cab. A ½" Pinion 26 fixed on the Rod between the Triangular Plates meshes, at non-standard spacing, with a 50-teeth Gear Wheel on a 2" Rod held by a Collar and a Crank in the left-hand chassis member and in the circular hole of a Fishplate overlaying elongated holes of the nearby 3" Angle Girder. The arm of the Crank is lock-nutted to an End Bearing fixed on a 5½" compound rod supplied by a 1½" and a 4" Rod joined by a Coupling. Another End Bearing is fixed on the rear end of the compound rod and this is attached to Coupling 20 by a 1⅛" Bolt, being locked by Nuts on the shank of the Bolt as far away from the Coupling as possible to ensure maximum leverage.

Inside the driver's cab, two 2½" x ½" Double Angle Strips, lugs upwards, are bolted to Flanged Plates 17. Bolted, in turn, to the lugs of the Double Angle Strips are two 3" Flat Girders 27 and two 3" Angle Girders. Fixed directly to the upper ends of the Angle Girders is a 2½" x ½" Flanged Plate 28 which is angled upwards and attached by Fishplates to the upper front corners of the Flat Girders at the same time fixing two 1" x ½" Angle Brackets, one to the inside of each flange of the Plate.

Bolted to these Brackets is a 2½" Strip 28A, to which another similar Strip is attached by a Fishplate. Mounted in the Flanged Plate and in an appropriate hole in forward Flanged Plate 17 is a 5" Rod fitted with a steering wheel and carrying a ½" Pinion on its lower end. This Pinion meshes with Contrate Wheel 25 to complete the manual steering linkage.

REAR AXLE AND GEARBOX

Turning to the rear axle, a substantial casing is first built up in two sections, one consisting of four 1½" x ½" Double Angle Strips 29 arranged to form a box and bolted between a Face Plate and a Boiler End, and the other consisting of four 2½" x ½" Double Angle Strips 30, also arranged to form a box and bolted bteween a Face Plate and a Boiler End. The two sections are then connected by bolting four 2" Strips between the Boiler Ends as shown.

The Boiler Ends and Strips form the casing for the differential which is of fairly standard Meccano construction. Free to turn in the longitudinal bore of a Coupling are the half shafts, one provided by a 4" Rod and the other by a 5½" Rod. Loose on the longer Rod is a 1½" Bevel Gear, while a ¾" Contrate Wheel is fixed on the inner ends of both Rods. These Contrate Wheels mesh constantly with two ¾" Pinions revolving freely on Pivot Bolts locked in the central transverse threaded bores of the Coupling. Carried in the central transverse smooth bore of the Coupling is a 1½" Rod on which two Collars are fixed, these Collars being secured to the Bevel Gear by a ¾" Bolts 31 and Nuts.

Bolted to one of the 2" Strips of the casing is a 1½" Strip overlayed by a Double Bent Strip 32. The Strips and Double Bent Strip form the bearings for a 1½" Rod held in place by a Collar inside the Double Bent Strip and a ½" Bevel Gear on the inner end of the Rod. This Bevel Gear meshes with the 1½" Bevel Gear.

Two leaf springs are next built up from a 4½", a 3½", a 2½" and a 1½" Strip, all slightly curved and secured, one on top of each other to the chassis members, the securing Bolts passing through the end holes of the 4½" Strip. Note that the forward end of the Strip is bolted directly to the chassis member, while the rear end is spaced away from it by three Washers and a Nut on the securing ½" Bolt. The completed axle is fitted to each spring by two ½" Reversed Angle Brackets which actually clamp the axle to the spring, no bolt passing through the Axle and outer lugs of the Reversed Angle Brackets. Twin rear wheels are each provided by two 3" Pulleys fitted with Motor Tyres.

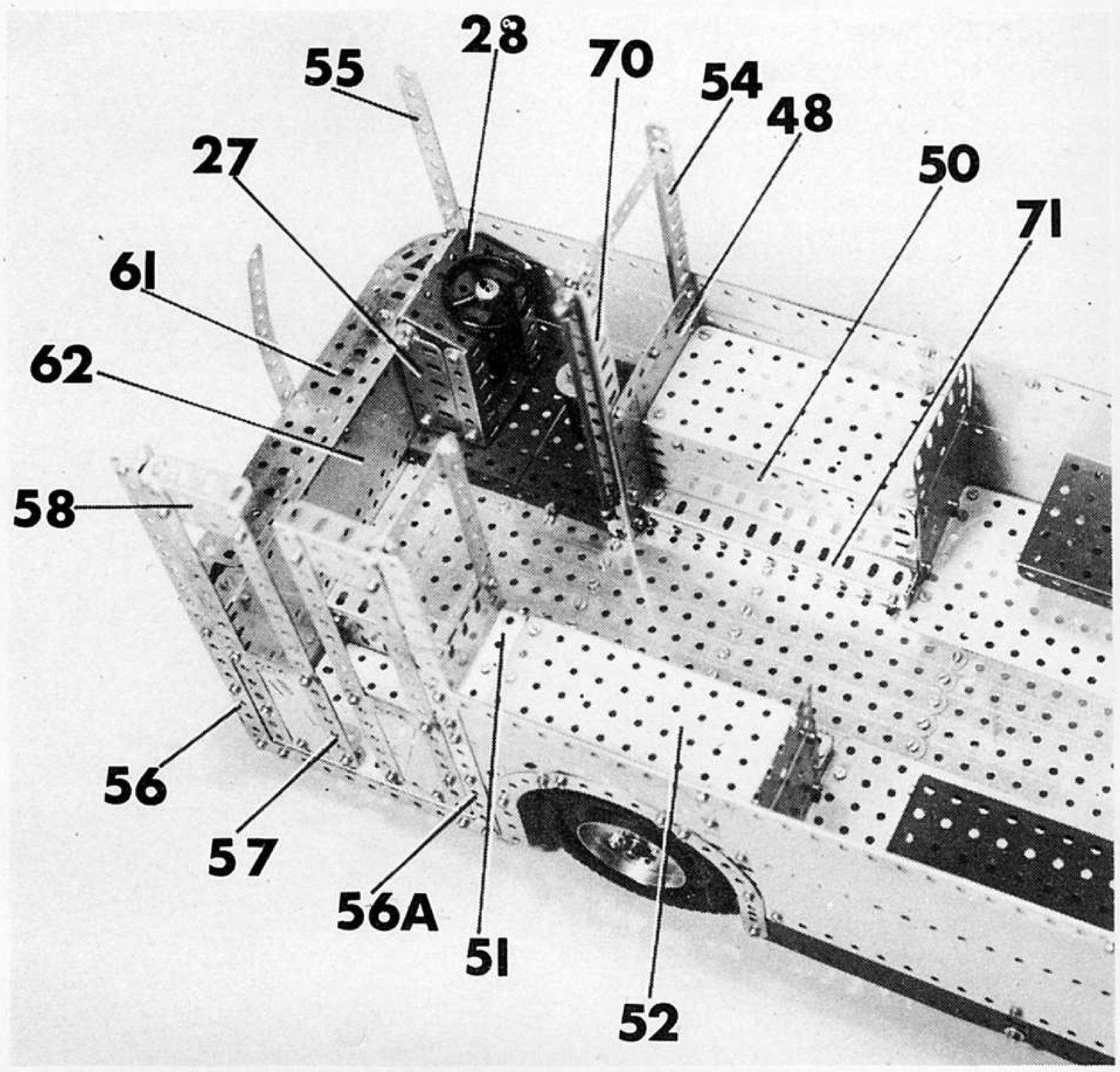
Before building up the gearbox, a second Power Drive Unit, set in the 3 : 1 ratio, is bolted to a 1½" Angle Girder 33 bolted in turn to a 5½" Strips 10, the securing Bolts also fixing two Flat Trunnions to the Strips. Journalled in the apex holes of these Flat Trunnions, and in two other Flat Trunnions 34 secured to Strip 9, is a 4½" Rod carrying a 57-teeth Gear 35 and a Universal Coupling. This Universal Coupling is joined by a 2" Rod to another Universal Coupling on the end of the 1½" Rod projecting from the differential.

Gear Wheel 35 engages with a ½" Pinion vertically above it on the rear end of a 3" Rod held by a 60-teeth Gear and a Collar in Strips 9 and 10. The 60-teeth Gear engages with a 7/16" Pinion 36 on the end of another 3" Rod also journalled in Strips 9 and 10. Fixed on the Rod between the Strips are a 50-teeth Gear and a 57-teeth Gear, while fixed on a sliding layshaft journalled alongside in Strips 9 and 10 are a ¾" Pinion 37 and a ½" Pinion 38. The Gears and Pinions are so positioned on their Rods that, with the layshaft rearward, the 50-teeth Gear meshes with Pinion 37 while the 57-teeth Gear and Pinion 38 are out of mesh. As the layshaft is moved forward, however, the 57-teeth Gear and Pinion 38 should move into mesh a fraction after the 50-teeth Gear and Pinion 37 disengage. When the layshaft reaches its maximum forward travel, Pinion 38 should move out of mesh to result in a neutral period when the engine is 'ticking over'. The layshaft is provided by a 3½" Rod.

Movement of the layshaft is controlled by a centrifugal mechanism built up from two pairs of 1½" Strips 39, the two Strips in each pair being pivotally connected to each other by a ¾" Bolt on which a ½" Pinion is carried to serve as a weight. The rear Strip in each pair is loose on a standard Bolt locked by a Nut in a Collar which is *fixed* on a 3" Rod journalled in Strips 10. The ends of the forward Strips are free to pivot on further Bolts locked by Nuts in the end transverse threaded bores of a Coupling, but note that the Bolts must not foul the Rod as the Coupling must be free to slide on the Rod. Mounted on the Rod between the Coupling and Collar are two Compression Springs separated by a Washer and with another Washer at each end. The forward end of the Coupling is locked on a Collar fixed on the rear end of the layshaft.

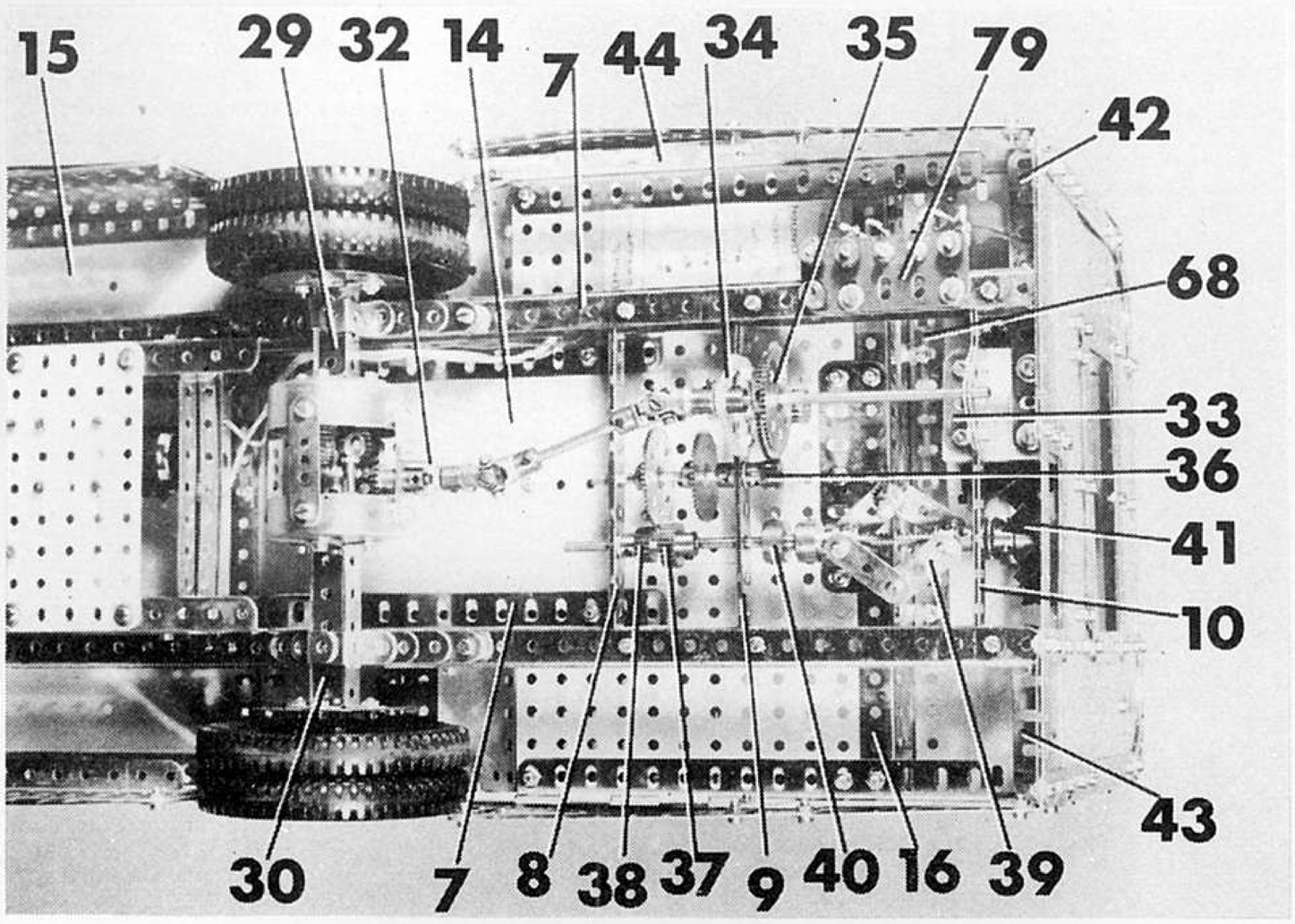
The Rod carrying the centrifuge is held in place by a Collar at one side of Strips 10 and a ½" Pulley at the other side, while a Fan 41 is fixed on the rear end of the Rod. The Pulley is connected by a short length of Spring Cord to another ½" Pulley on the output shaft of the Power Drive Unit. Note, incidentally, that, as well as being secured to Angle Girder 33, the Power Drive Unit is also secured to a 4½" Angle Girder 42 bolted to the rear end of the left-hand chassis member. A 2½" Angle Girder 43 is bolted to the rear end of the right-hand chassis member.

To be concluded next issue with details of the bodywork, seating and roof.



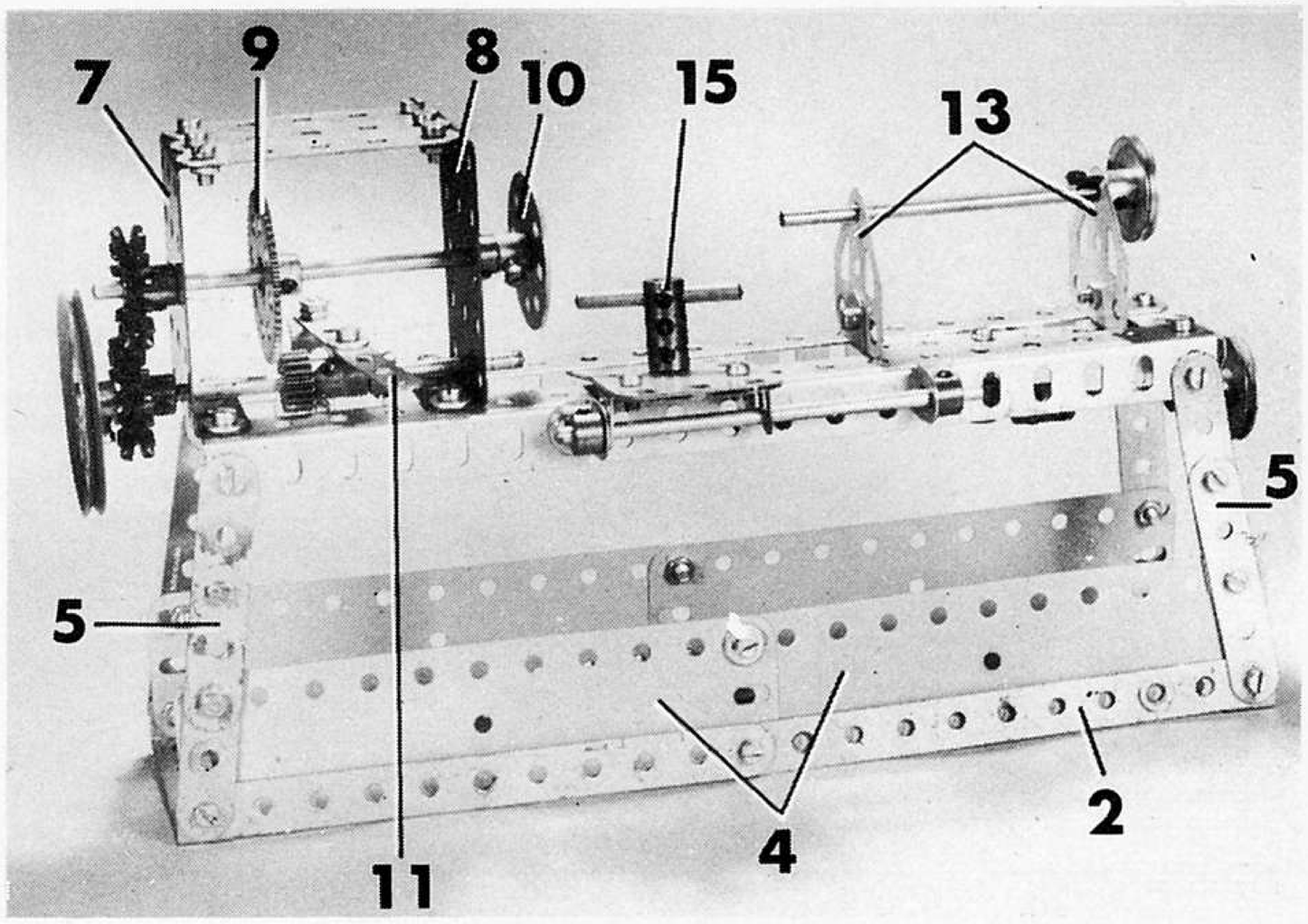
A view with the roof removed looking into the driver's compartment.

An underside close-up view of the front axle and steering mechanism.



TAYLOR'S TEKNIKIT

Taylor's Teknikit is our name for a 'machinery multikit' developed for his own interest by Mr. Harold Taylor of Huddersfield. From a standarised selection of parts, especially chosen for building interesting machine models, Harold has designed a number of excellent machines which we have been featuring in these pages. The 'Kit' is not commercially available, of course, but we give a list of its contents below for those who wish to collect the parts in order to build the models. Already we have featured a Bench Drill, a Shaping Machine, and a Milling Machine; and now we have a . . .



LATHE

PERHAPS the best know and most frequently used piece of engineering workshop equipment, the lathe is an essential subject for any self-respecting machinery multikit set of instructions. Our model, here, is of necessity a fairly simple reproduction, but it nonetheless illustrates the basic operations of this popular piece of equipment.

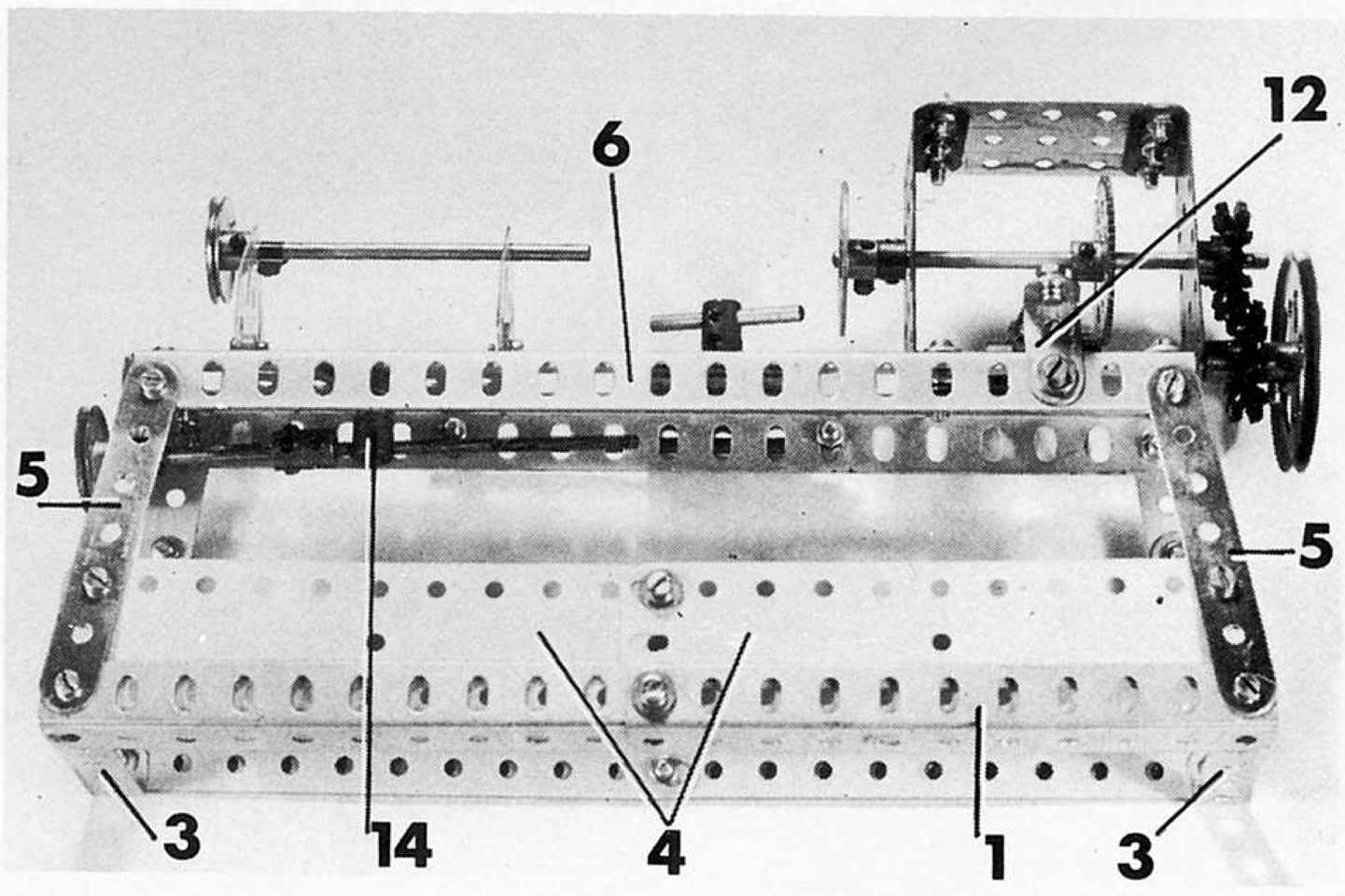
As regards construction, a lathe bed is built up from a 10½" compound angle girder 1, supplied by two 5½" Angle Girders, connected to a 10½" compound strip 2 by two 2½" x ½" Double Angle Strips 3, the securing bolts also fixing two 5½" x 1½" Flexible Plates 4, and two 3½" Strips 5 in place at each side. Note that Strips 5 at one side are complete 3½" Strips, while at the other side they are compound strips built from overlapping 2½" Strips.

Strips 5 are angled inwards, as shown, and their other ends bolted to two 9½" Angle Girders 6, connected together at one end by a Trunnion, and, at the other end, by a 2½" x 1½" Flanged Plate 7. Another similar Flanged Plate 8 is bolted to the Angle Girders through their fifth holes, then the other flanges of the two plates are connected by three 2½" Strips. Journalled in the centre holes of Plates 7 and 8 is a 3½" Rod carrying a 57-teeth Gear Wheel 9 and held in place at one end by a Multi-purpose Gear and, at the other end, by a Collar. An 8-hole Bush Wheel 10 is fixed on the inner end of the Rod to represent the chuck.

The multi-purpose Gear meshes with another Multi-purpose Gear on a second 3½" Rod journalled in the bottom row centre holes of the Flanged Plates. A 2" Pulley is fixed on the end of this Rod to receive the drive if a motor is fitted to the model. Also fixed on the Rod, between the Plates, are a ½" Pinion and a Collar, a loose Collar being carried on the Rod between them. Pivotally attached to the loose Collar is a 3" Narrow Strip 11, one end of which is lock-nutted to the short lug of a 1" x ½" Angle Bracket 12 bolted to one Angle Girder 6. This Narrow Strip acts as a control lever to move the Pinion in and out of mesh with Gear Wheel 9.

An adjustable tailpiece is next provided by two Flat Trunnions 13 bolted to the lugs of a 2½" x ½" Double Angle Strip. This Double Angle Strip slides in the space between Angle Girders 6, and is controlled by a 3" Screwed Rod which passes through the transverse bore of a threaded boss 14 secured to the centre underside of the Double Angle Strip. The Screwed Rod is extended, via a Short Coupling, by a 2" Rod journalled in the apex hole of the Trunnion bolted to one end of Angle Girders 6. A 1" Pulley on the end of the Rod serves as the movement control wheel. A 3½" Rod is held by a Spring Clip and another 1" Pulley in the apex holes of Flat Trunnions 13.

The cutting tool, represented by a 1" Rod held in the end transverse bore of a Coupling 15, is mounted on a sliding support provided by a 'wad' of three 2½" x 1½" Flexible Plates bolted to two Angle Brackets. These Angle Brackets locate through their slotted holes on a 4" Rod held by Collars in two more Angle Brackets bolted to one Angle Girder 6. Note that the other end of the wad of flexible plates locates under the horizontal flange of the other Angle Girder 6.



PARTS REQUIRED

2 - 2	16 - 1	35 - 2	64 - 1
3 - 2	17 - 1	37b - 39	80c - 1
5 - 7	18a - 1	37c - 42	111a - 2
8a - 2	20a - 1	38 - 9	126 - 1
9 - 2	22 - 2	48a - 3	126a - 2
10 - 2	24 - 1	51 - 2	188 - 4
12 - 4	26 - 1	59 - 6	189 - 4
12b - 1	27a - 1	63 - 1	
15b - 2	27f - 2	63d - 1	235a - 1

TAYLOR'S TEKNIKIT CONTENTS LIST

Part No.	Qty	Part No.	Qty
2	4	53a	2
3	2	59	6
5	10	62	1
8a	2	63	1
9	2	63d	1
10	4	64	1
11	2	80c	1
12	8	108	2
12b	2	110	1
15b	1	111	2
16	3	111a	2
17	2	111c	6
18a	2	115	1
20a	2	125	2
22	3	126	2
22a	2	126a	2
24	2	133a	2
26	2	160	1
27a	1	188	4
27f	2	189	4
32	1	190	2
35	2	194a	2
37b	64	194c	2
37c	64	214	2
38	30	230	1
43	1	231	1
48a	6	235a	2
51	1	235d	2
52	1	235g (1½" N.S.)	2

'No. 1' IN ARGENTINA

MECCANO SUPERMODEL OF ARGENTINA'S FIRST RAILWAY ENGINE 'LA PORTEÑA' by JORGE CATELLA

DR. Jorge Catella of Buenos Aires is one of a group of first-class Meccano modellers in Argentina and some of his prolific model-building output has been featured in past editions of Meccano Magazine and Meccano Engineer. Well up to his meticulous standards of design, function and model-building is his excellent reproduction of Argentina's first railway locomotive, 'Locomotive No. 1, La Portena'. Originally built by E. B. Wilson & Co. of Leeds, in 1856, Works No. 570, Type 2-2-0 locomotive went into service with the old B.A.W.R. (Buenos Aires West Railways) in 1857. Fitted with 4 ft. dia wheels and 10" x 15" Cylinders, 'La Portena' weighed in at 15.59 tons. We are not able to give full building instructions in the limited space at our disposal, but we are indebted to Bert Love for preparing the photographic prints from Jorge's negatives and for his write-up in English of a general description which should enable advanced modellers to follow the essential features.

Figs. 1, 2 and 3 show the general outlines of the model which immediately places it in the 19th century category of early but nevertheless elegant railway locomotives. At first sight the engine would appear to be an 0-4-0 type wheel arrangement, but only the rear pair are driven, leaving the front pair uncoupled, hence the 2-2-0 classification. Basic model dimensions are set by 24½" Angle Girders topping the side frames outboard and 12½" Girders forming the upper and lower edges of the forward and rear buffer beams. In the prototype, all four wheels had eleven spokes each, but an acceptable compromise of twelve spokes has been achieved in the model by using laminations of 2½" Strips, three at a time, showing edge-on and being attached by pinching techniques on the wheel centres made from paired 8-hole Wheel Discs and Bush Wheels. At four points, the spokes are reduced to layers of 2" Strips attached by Right-angled Rod and Strip Connectors to the wheel rims by ¾" Bolts. Rims are Circular Girders and in Jorge's model special hollow centre metal discs were cut to maintain the open spoke appearance of the prototype, but standard Meccano Circular Plates match up to the same dimensions and hole spacing. These form the inner flange of the wheels and the outer eight ¾" Bolts are passed through the holes in the internal Flange Ring or Circular Plate. Some degree of skill and patience is required at this stage to set up the spokes in a regular radial pattern so that when all of them are trapped by the wheel rims and centres, the wheel will spin concentrically. As the model is fitted with an electric motor driving both pairs of wheels on an exhibition stand (with the wheels just clear of the rails) it is most important that the wheels run truly on the appearance will be comical to say the least!

'Paddle-box' wheel arches are fitted, with side apertures, the curvature being obtained from pairs of 2½" Curved Strips overlapped one hole and bolted to the running plates by 1½" x ½" Angle Brackets in their third holes. The 4½" Narrow Strips forming the lower edge of the paddle-boxes are simply attached at their centre points only as they would not match up with the span of the compound curved strip arches. Pairs of 2½" x 1½" Flexible or Plastic Plates form tops for the paddle-boxes. Buffer beams front and back are four holes deep, edged by 2" Girders vertically and filled in with 12½" Flat Girders or Perforated Strips. Buffer plates are 8-hole Bush Wheels bolted to double thicknesses of 1½" Square Plates mounted on the buffer beams as shown. Flanged and Bush Wheels on 2" Axle Rods form buffers and are fitted with a Compression Spring and Chimney Adaptor before being passed through the beam and fitted at the rear with a Collar.

'La Portena' carried her water in a large pannier tank which straddled the boiler and this is built in one piece in the Meccano model, the 'boiler' being an open space to accommodate electric motor and power supply. A pair of 12½" x 2½" Strip Plates overlapped vertically by one row of holes and overlaid all round by decorative Narrow Strips form the pannier tank sides. Curved shoulders on the pannier are made from 2½" Semi-circular Plates bolted on their centre lines to 5½" x 2½" Flexible Plates front and rear of the pannier and running horizontally. Top plating of the tank are sets of overlapped 2½" Square Flexible Plates set in the same curve as the Semi-circular Plates and joined across the top to 5½" Flat Plates overlaid with Flexible Plates for neat finish and decorated by Narrow Strip lining. A central lid for the water tank is made from Wheel Flanges sandwiching a Face Plate, fitted with a lifting handle made from a 1½" Rod in a pair of Handrail Supports and hinged at the rear, to the top plating.

Typical of Jorge's fine detail modelling is the 'bell' smoke box, conical chimney cap and

Fig. 1, General view of the Meccano Model of Argentina's First railway locomotive 'La Portena'.

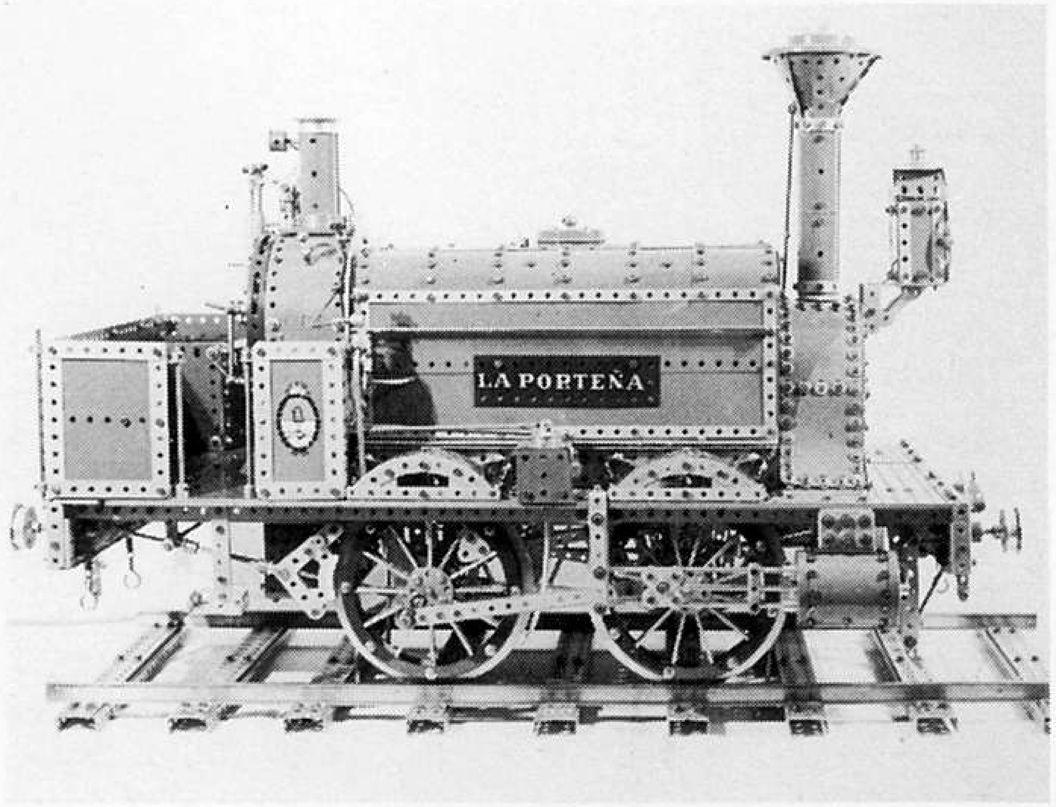
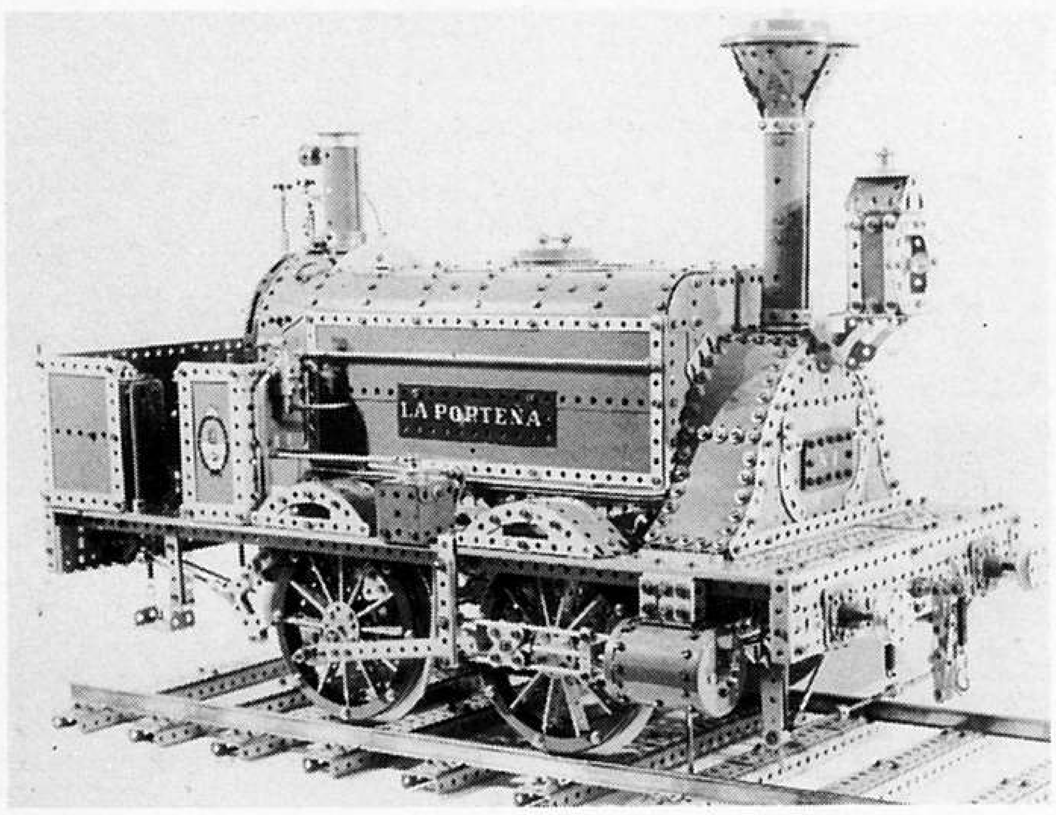


Fig. 2, Three quarter front view showing general elegance of the curvature in outline, well reproduced in Meccano parts.



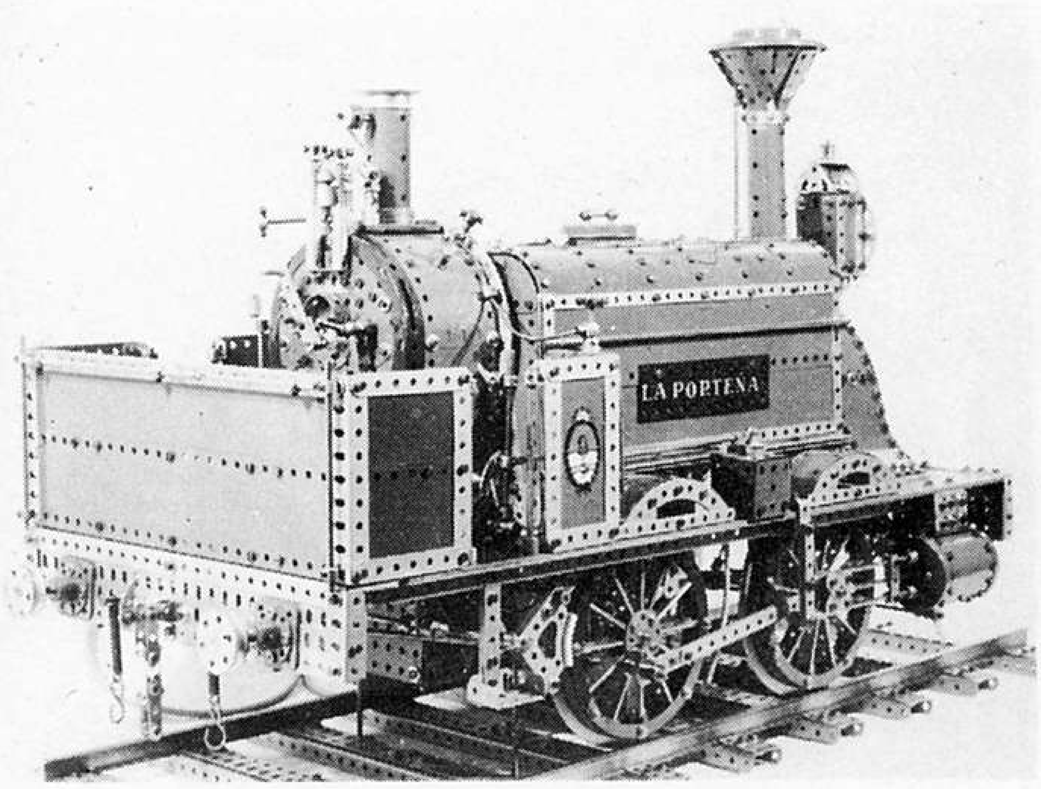


Fig. 3, View towards control cab. Note Reversing lever on footplate, large brake shoe and rear buffer beam detail.

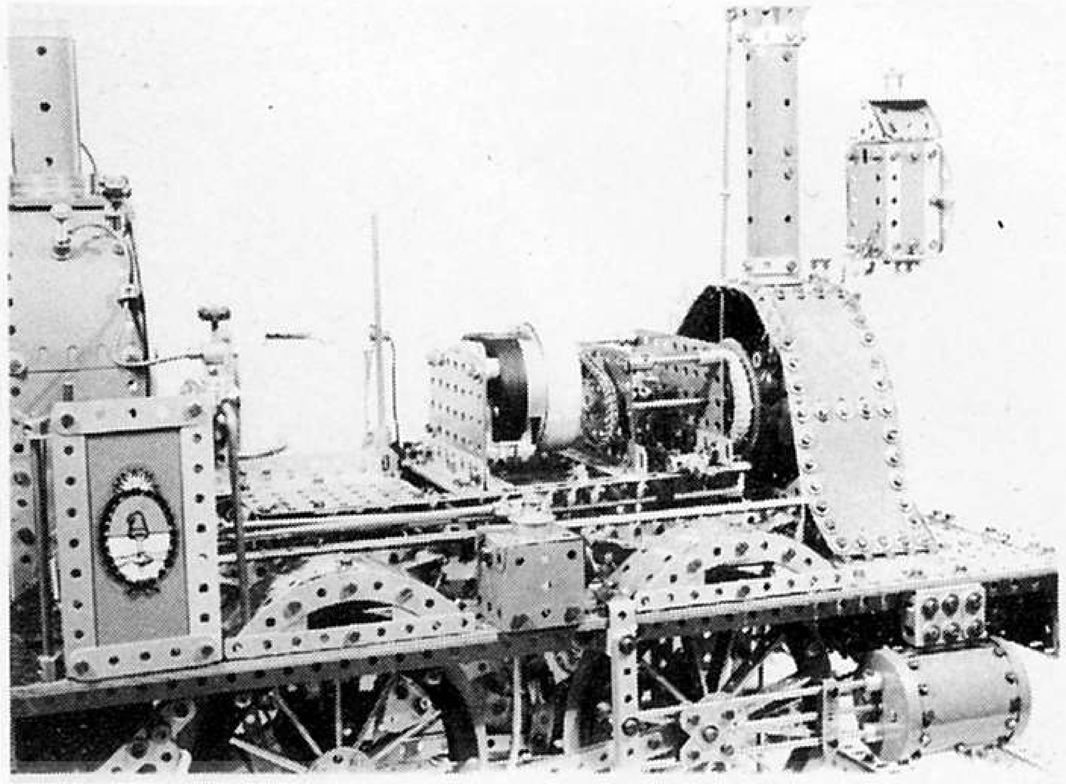


Fig. 4, Model with pannier tank removed showing location for battery box and mains motor drive. Vertical Screwed Rod in centre locks pannier tank in place.

ornate lantern. To achieve the smooth reversed curvature of the smoke box, four 1½" Strips are joined end to end, finishing in a 2½" Curved Strip towards the top. A base span of 9½" is covered at the front by a 9½" Strip to either end of which the first in the series of 1½" Strips is attached. Joined 3½" x 2½" Flexible Plates form the smoke box sides, the top of the 'bell' being built up from suitable parts to lock a large Flanged Wheel, boss downwards, in the centre. This forms a lower support for the two 3" Cylinders forming the main barrel of the chimney. Construction of the flared conical chimney top is a real trial of skill, a set of 2½" x 1½" Triangular Flexible Plates being set up individually with a curved form and fanned out to be trapped under the lip of a Ball Race Flange, bolted only at their lower ends to a 5½" Narrow Strip curved to a smooth ring. A large Flanged Wheel with boss pushed through an inverted Wheel Flange caps the chimney and a Screwed Rod running down the centre locks the chimney cone in place resting on the upper 3" Cylinder, the Screwed Rod passing right down into the smoke box. An inspection door with dummy hinges is provided at the front by a double thinkness of 3" x 1½" Flat Plates on which the 'No. 1' appears in white adhesive lettering. The ornate lamp is clearly seen in the general views and carries a 3 volt bulb operated from a Meccano battery box mounted on the chassis under the pannier tank.

Construction of the large outside cylinders and piston crosshead is fairly clear from the main figures. One 5½" x 2½" and one 2½" x 2½" Flexible Plate are joined together to form a neatly rolled cylinder and suspended by a double set of Channel Bearings from the sideplates. All end holes of the Flexible Plates are fitted with Bolts to make a sealed tube and the Wheel Flanges are fitted with an 8-hole Wheel Disc at the Rear and a Bush Wheel (both from the inside) at the front. The rear Flange is also fitted with a pair of Rod Sockets as shown and these carry 4½" Rods to the rear as crosshead guides. A pair of Screwed Rods run right through the finished cylinder to clamp the Wheel Flanges on and these come to rest against the ring of boltheads at either end of the Flexible Plate tube.

A neat crosshead slide is made from four 1" Corner Brackets locked together very firmly at the centre and critically packed internally with standard and thin Washers, the locking Bolt being long enough to pass through to the joint of the connecting rod and the Rod and Strip Connector attached to the Meccano Axle acting as the piston rod. Four ⅜" Bolts are fitted to the crosshead slide with internal locknuts set up with patience and care to give a smooth sliding engagement on the pair of Rods acting as piston guides and they are strengthened 1 cm from the Rod Sockets by two Collars overlaid with a 1½" Narrow Strips and by a rear hanger. This is located 21 holes back from the front of the locomotive and consists of a 3½" Double Angle Strip overlaid with four 3" Narrow Strips to make a solid hanger. The top lugs of the D.A. Strips are bolted to the sideplates, which are double layers of Flat Girders running along the 24½" Angle Girders, a Collar being used to adjust the height of each lug. Immediately below, a Double Bent Strip anchors the hanger to the side frame. At the lower end of the hanger the guide rods are fixed on by Collars and Bolts.

Further details of wheel construction can be seen in Fig. 5 where the laminated strip technique and use of Right-angled Rod and Strip Connectors is clear. Counterweight 1" Triangular Plates are attached to the spokes by Angle Brackets. One pair of Fishplates bolted to the wheel hubs trap a Collar internally, with packing Washers, to hold a 1½" Rod acting as the crankpin. Combinations of Narrow and standard Strips give a built-up connecting rod, a Crank being used at the crankpin joint. Brake blocks are sets of five Corner Gussets spaced by selected flat washers and fitted with a plastic pad attached by latex adhesive.

Fig. 6 shows the driving compartment, or cab, which bristles with detail from regulator lever to safety valve. The steam 'dome' is cylindrical as in the prototype (where it was slightly tapered) and uses the Meccano Cylinder on a stack of eight brass Wheel Discs mounted on three layers of 2½" x 1½" Flat Plates (Argentine Meccano). An inverted Conical Disc is trapped by a Collar over an inverted large Flanged Wheel to make a cap for the dome. Linkage for the two rear brake shoes can be seen in Fig. 9 and this finishes up attached to a vertical Screwed Rod in the driving compartment (left hand of Fig. 6) carried in a Threaded Crank attached to the cab plates. Small hand wheels are made from 'spider' collars fitted with four shouldered bolts from Universal Couplings. Threaded Bosses, Threaded Couplings and Handrail parts are used extensively for →

Fig. 5, Close-up detail of wheel construction. Note clamping technique at rim and hub and use of layered Strips.

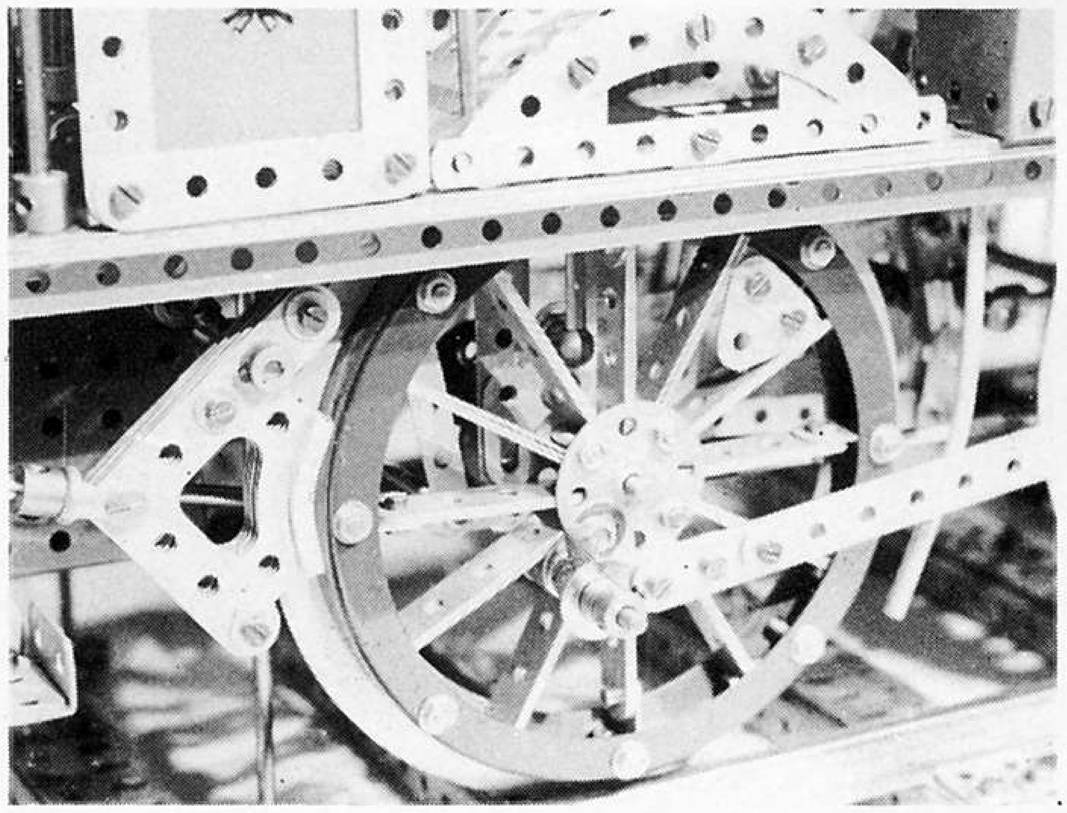
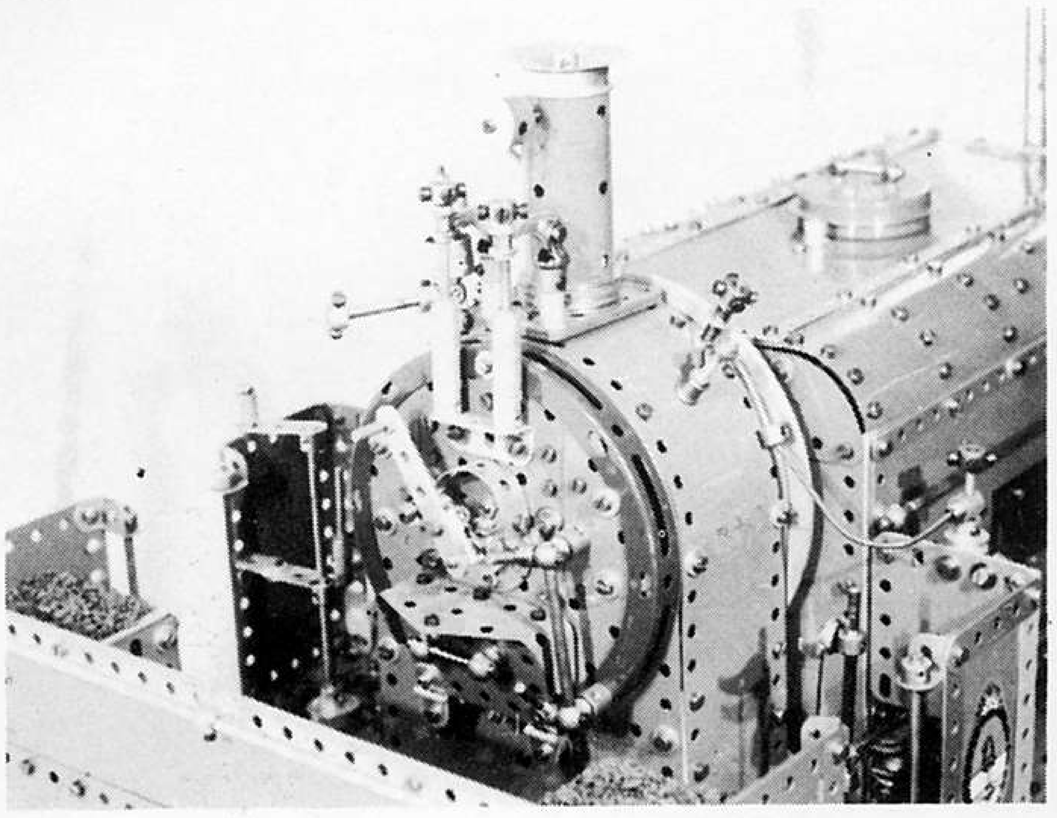


Fig. 6, Details of fittings in driver's compartment. Note hinged fire-grate door.



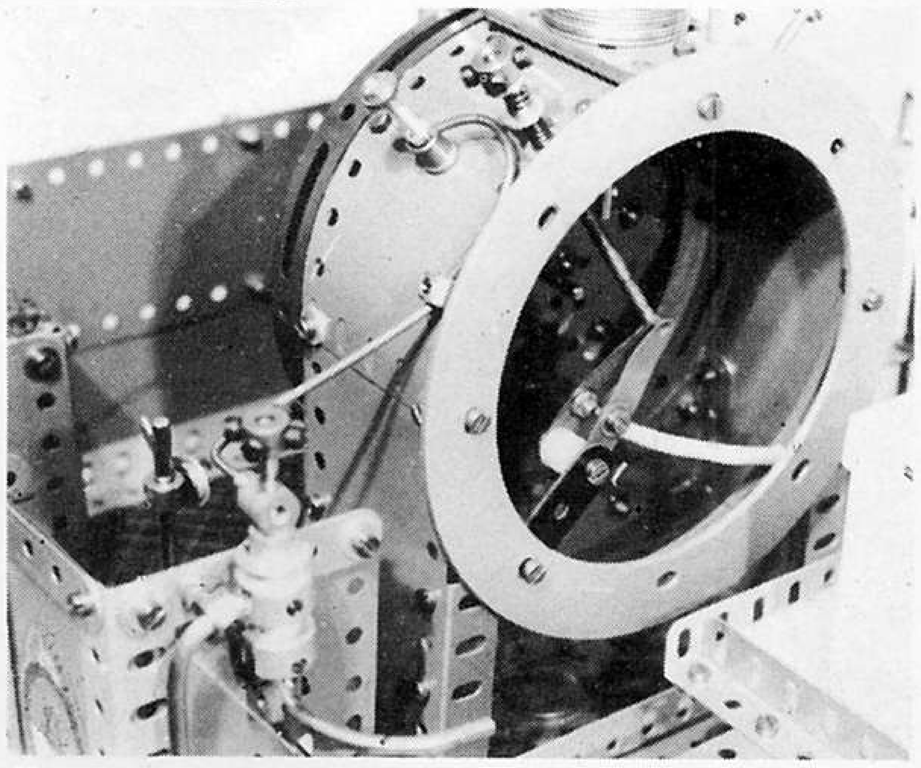


Fig. 7, Bulkhead division forward of the firebox showing plunger switch for ornate lamp. A standard 6" Dia. Circular Plate may be used here.

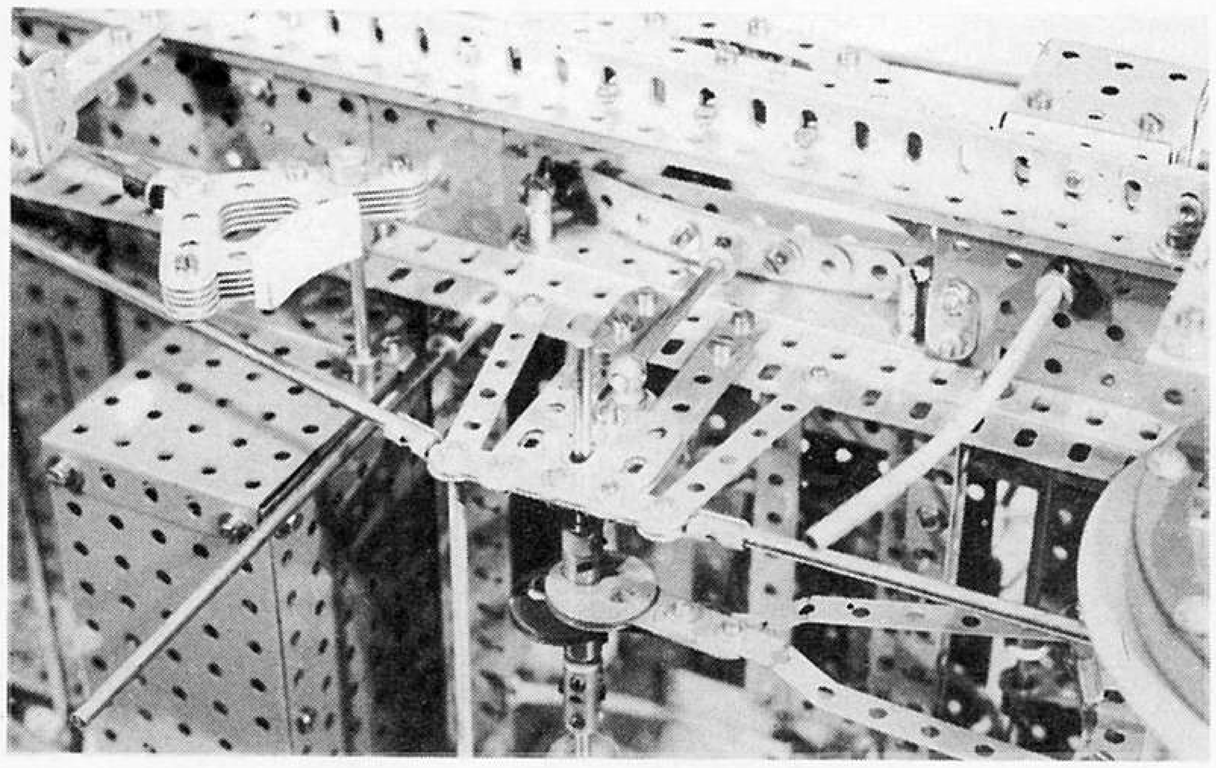


Fig. 8, Horn block construction and overhung suspension details as per prototype.

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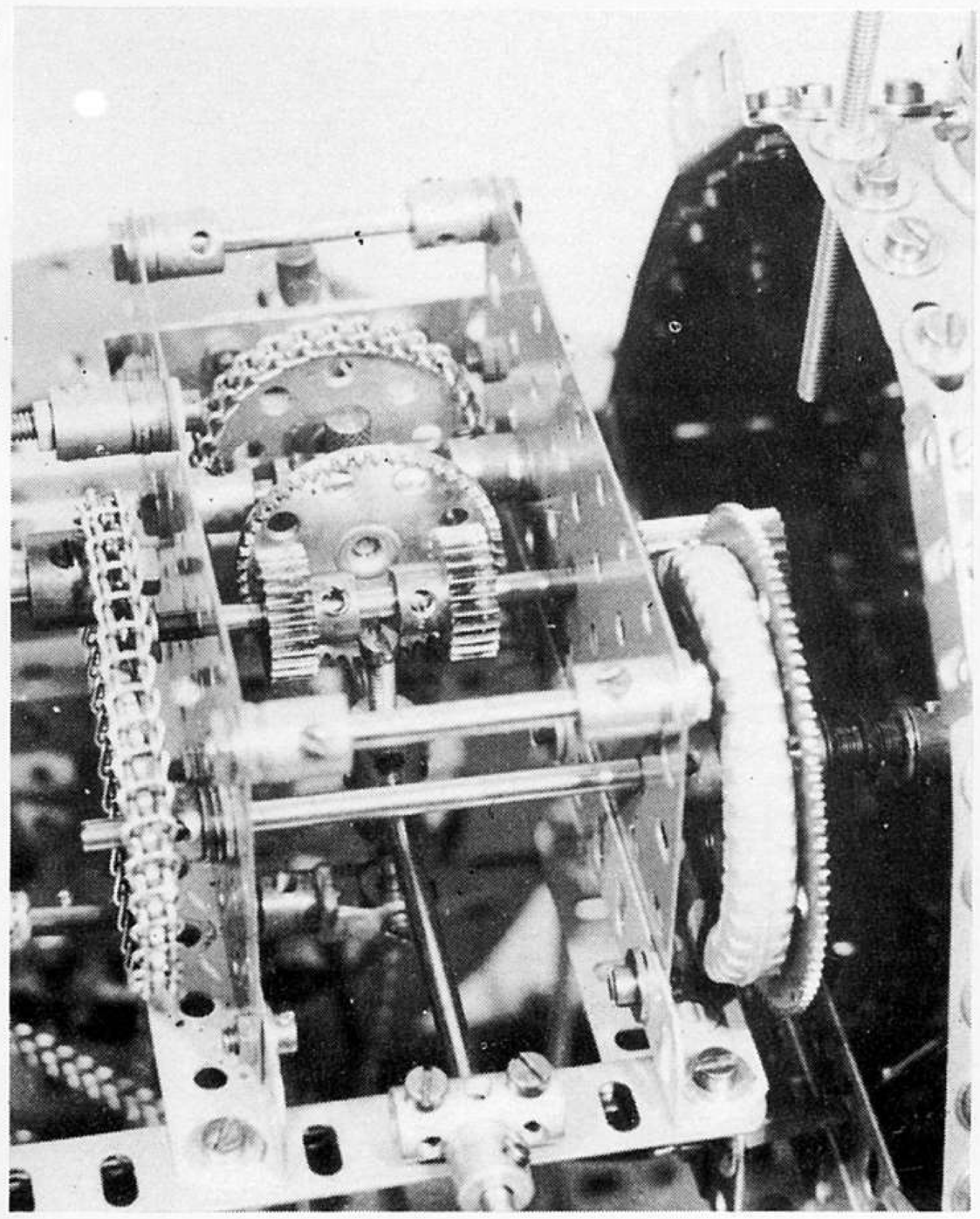
the various fittings.

A frontal view of the fire box bulkhead is seen in Fig. 7 where the special 6" circular flange can be seen (turned up from a standard 6" Dia. Meccano Circular Plate). A hollow plate is not actually necessary here and the normal Circular Plate may be used by fitting internal Threaded Bosses to act as attachment points when finally bolting on the Circular Plate. The electrical contacts which can be seen in Fig. 7 are operated by an externally mounted spring-loaded push-rod to light up the ornamental lamp, connections being made from the battery box which can just be seen in Fig. 7. Three Circular Girders are used on the fire box construction, two internally, overlaid externally with a series of 5½" x 2½" Flexible Plates andone externally as seen in Fig. 6.

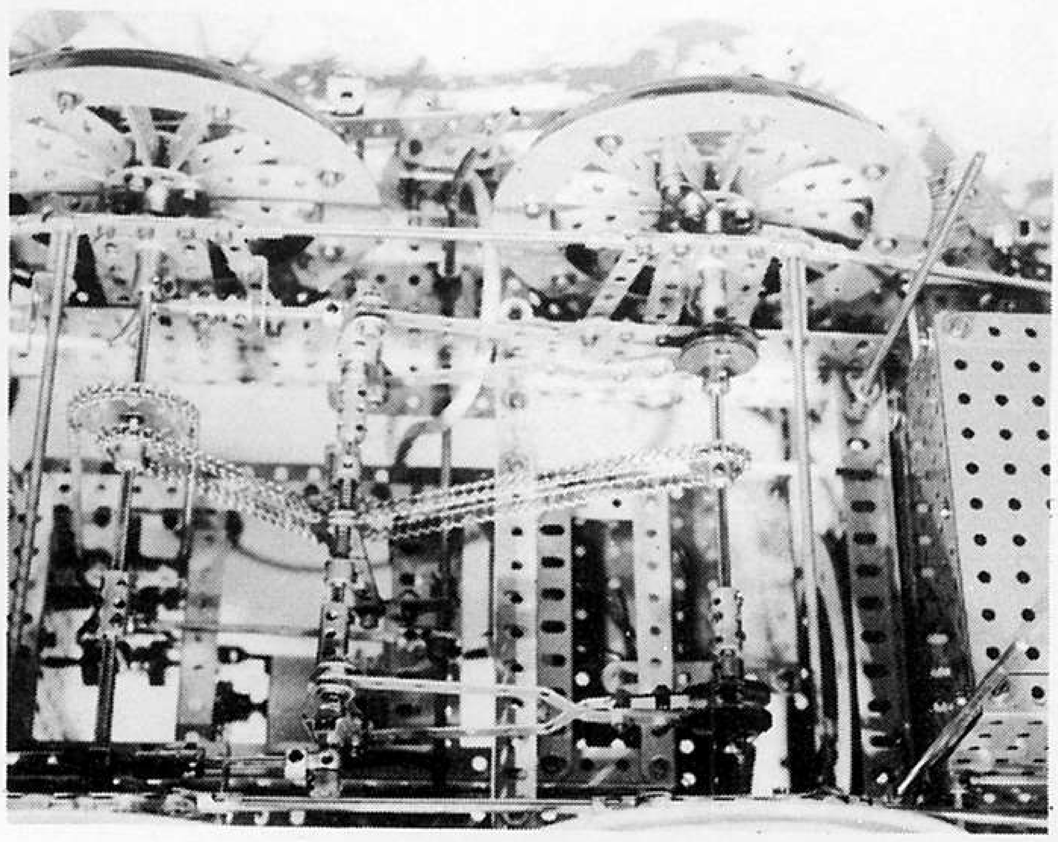
Realism is not limited to the upper construction of the model and Fig. 8 will show that sliding horn blocks for the axles and overhung leaf springs are fitted. These 'blocks' are pairs of 1½" Flat Girders sandwiching two Fishplates connected by a Handrail Support via a Rod to the Double Arm Crank on the leaf spring above. One of each of 4½", 3½" and 2½" Strips from the spring, the longest Strip being hinged at each end to Right-angled Rod and Strip Connectors swinging on Pivot Bolts attached to the side frames. The horn blocks slide up and down on the 3½" vertical Strips that are bolted to the framework above, this being 24½" Angle Girders extended downwards by long Flat Girders. Additional bracings to the slides are provided by 3" Narrow Strips set at the angle shown and by tension bars made from Meccano Rods and Connectors braced to the locomotive frames. Transverse Screwed Rods add rigidity and further details can be seen in Fig. 9.

This view also shows that twin eccentrics are mounted below the framework to operate valve gear via sliding quadrants. A 'Vee' form of chain drive is used from the mains motor to avoid fouling the valve gear, but the reversing quadrants are correctly linked to the reversing lever on the footplate of the cab (see right hand of Fig. 6) and this is extended forward to operate a mechanical gear-reversing mechanism shown in Fig. 10. A large diameter clutch made from a 2½" Gear Wheel, spring-loaded against a 1½" Pulley with Tyre, fixed to its shaft is part of the transmission from the powerful CROUZET mains motor. This serves as a safety device which will slip if Sprocket Chains, etc. get fouled up. The neutral and reversing movements are effected by the sliding 25t Pinions running across the centre of the gear box. This means that, although the mains motor runs continuously, the model, raised on Axle Rods above the rails, can be run forwards or backwards or stopped from the hand lever in the cab thus simulating normal operating controls.

Right: Fig. 10, Reverse and neutral gearing from Mains motor. Note large diameter slipping clutch as safety factor.



Below: Fig. 9, Chain drive details to both wheel axles. Note twin reversing eccentrics at each side.



LAPSE TIMER

ELSEWHERE in this issue, Geoff Pratt concludes his cine-filming series, 'Let Your Models Live'. Not part of the series, though still involved with filming, this feature gives full constructional details for a Meccano model which enables the fascinating process of time-lapse photography to be carried out.

A fascinating branch of home movies is the filming of greatly speeded-up action. Examples of this are the end shots of comedy T.V. shows such as the Benny Hill show, where characters are seen racing at high speed in a peculiar jerky motion; also where clouds are seen to be racing menacingly across the sky. This effect is achieved by filming at a much slower rate than normal. When projected at the usual speed (for home movies this is 18 pictures /sec.) the action is seen to be much faster.

The specific effects just described can be easily done automatically with a number of different cameras, which can be set to film at from 6 pictures/sec. up to 1 picture/10 secs. or they can be done manually by sitting patiently operating the camera for one picture at a time over a period of several minutes. However, if one picture is taken every 5 minutes, or even every half hour, a much greater speed-up is obtained, and it becomes possible to actually film such things as flowers opening, condensing one or two days action into the space of a few seconds. Manual camera operation is in this case obviously impractical, and cameras do not have built-in timers of this range. The model described is one built by the author and used to film several flowers opening entirely automatically. It is built from standard Meccano parts and incorporates a mechanical switching mechanism that is extremely robust. The whole device is built solidly and is meant to last, so that it will reliably for many hours at a stretch without attention. Setting up needs considerable care, but when successfully adjusted it is fascinating to watch in action.

Long filming sessions are best carried out under controlled lighting conditions, so photographic floodlamps are used. These are not left on continuously, as their life is limited. Repeated switching on and off is not exactly conducive to long lamp life either! To overcome this problem a *pair* of lamps is first of all switched on in *series* so they can warm up more gradually. One of the lamps is then *shorted out,* leaving the other lamp at full power. At this point the camera release is operated, exposing one frame of film, before the lamp is switched off again. The whole cycle takes approximately 4 secs. and in the model described is repeated every 3½ minutes. With suitable adjustments to gear ratios in the timer section the frequency of operation can be set for from under a minute to several hours.

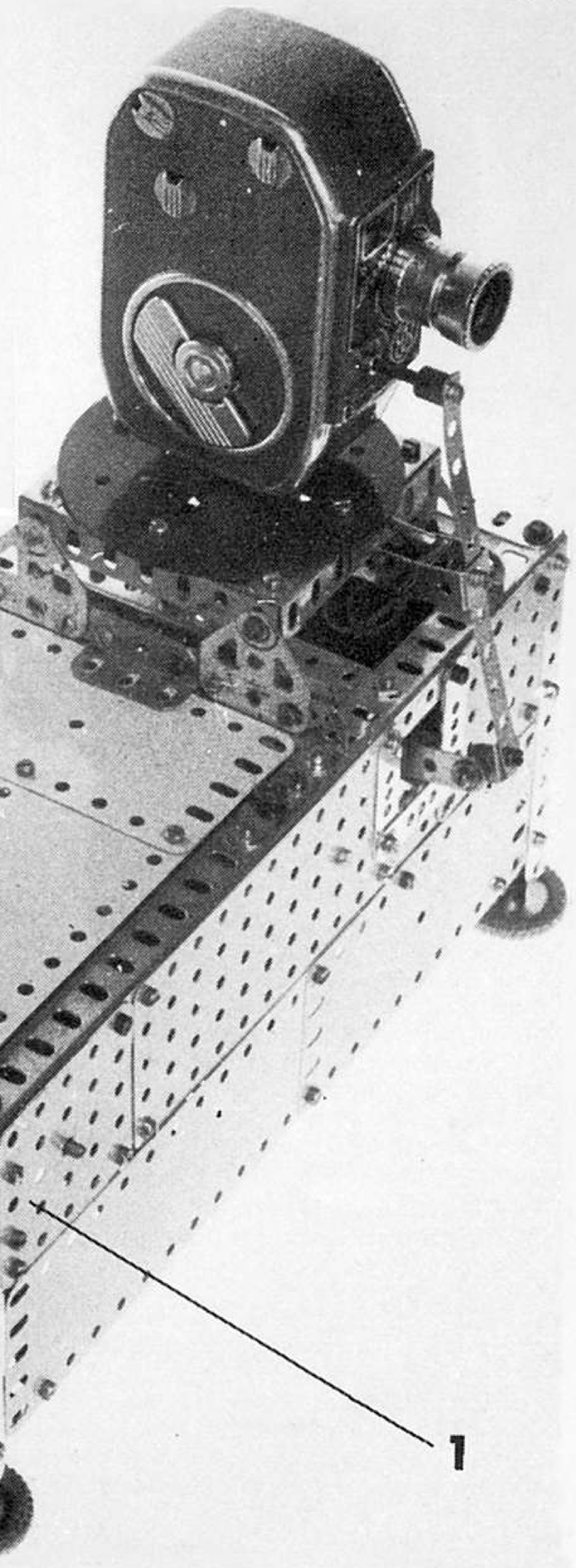


Fig. 1: The assembled Lapse Timer complete with cine camera mounted ready for filming

One final point, although the model is described as a Camera Lapse Timer, the principle of the mechanism can be applied to numerous other models where a complicated cycle of operation is required to be repeated at regular intervals—on a display model for example.

MAIN FRAMEWORK AND DRIVE

The main framework consists of six 12½" Angle Girders jointed at their ends by four vertical 5½" Angle Girders and four horizontal 5½" Angle Girders and a 5½" x 2½" Flanged Plate. The upper half of one side is filled in by two 2½" x 2½" Flat Plates, a 5½" x 2½" Flat Plate and a 2½" x 1½" Flexible Plate, leaving a small opening edged by three 2" Strips. The upper half of the other side is partly filled in by a 5½" x 2½" Flat Plate. One end of the frame is filled in with a 5½" x 3½" Flat Plate and a 5½" x 2½" Flat Plate.

An E15R Motor is mounted on the Flanged Plate and its spindle is extended by a Coupling holding a 2" Axle Rod, the outer end of which is journalled in one of the 2½" x 2½" Flat Plates. The Rod carries a 7/16" Pinion which drives a 60-teeth Gear Wheel and 7/16" Pinion assembly. Two Collars are held by Bolts in two opposite holes of the Gear Wheel. Two ½" Bolts passed through the Collars are screwed into the threaded holes of the 7/16" Pinion. A Nut on each Bolt locks the assembly firmly and leaves it free to rotate on a 1½" Rod held at one end by a Double Arm Crank bolted to Flat Plate 1, and at the other end in a Coupling. The Coupling is held by a Nut on a 1" Screwed Rod screwed into the centre tapped hole. The other end of the Screwed Rod is locked by a Nut in a Threaded Boss, which in turn is bolted to a 2½" x ½" Double Angle Strip 2. A 2" Rod is journalled in the centre transverse hole of the Coupling and in the end 5½" x 3½" Flat Plate. A 1½" Contrate Wheel on this Rod meshes with the Pinion of the Gear Wheel/Pinion assembly. Washers are used at appropriate places to space components where required so that all runs freely without fouling.

Also on the 2" Rod, a ½" Pinion is mounted

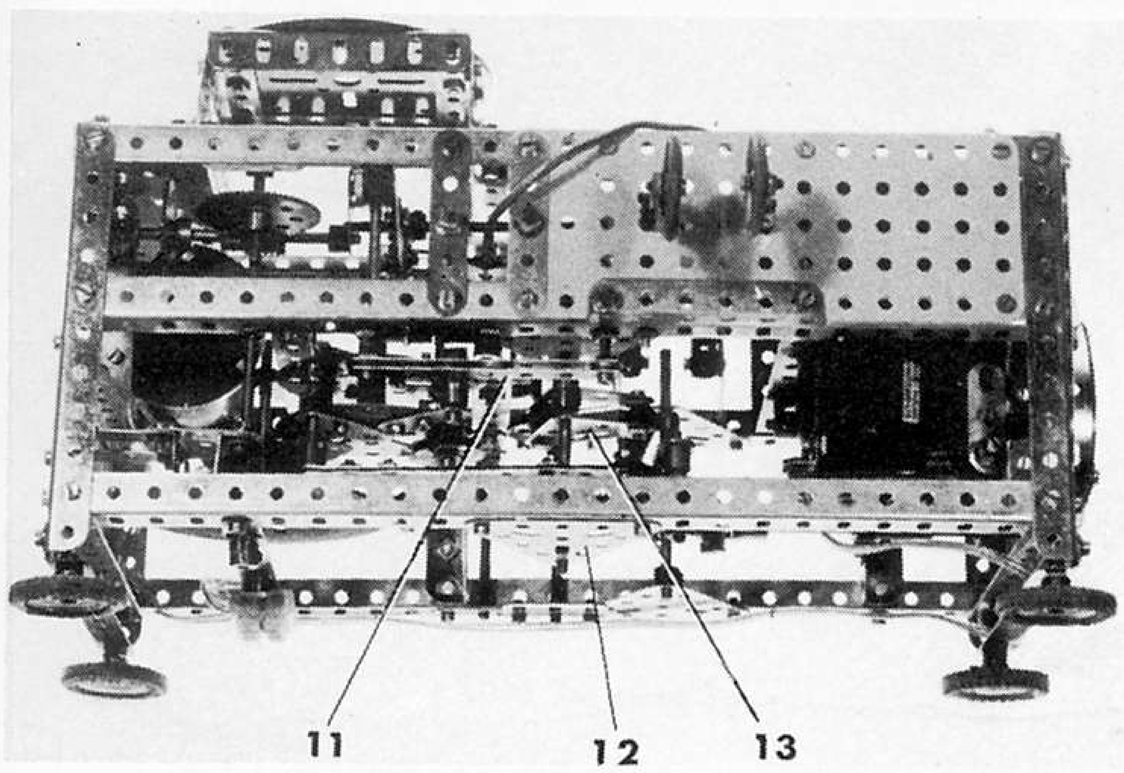


Fig. 2.

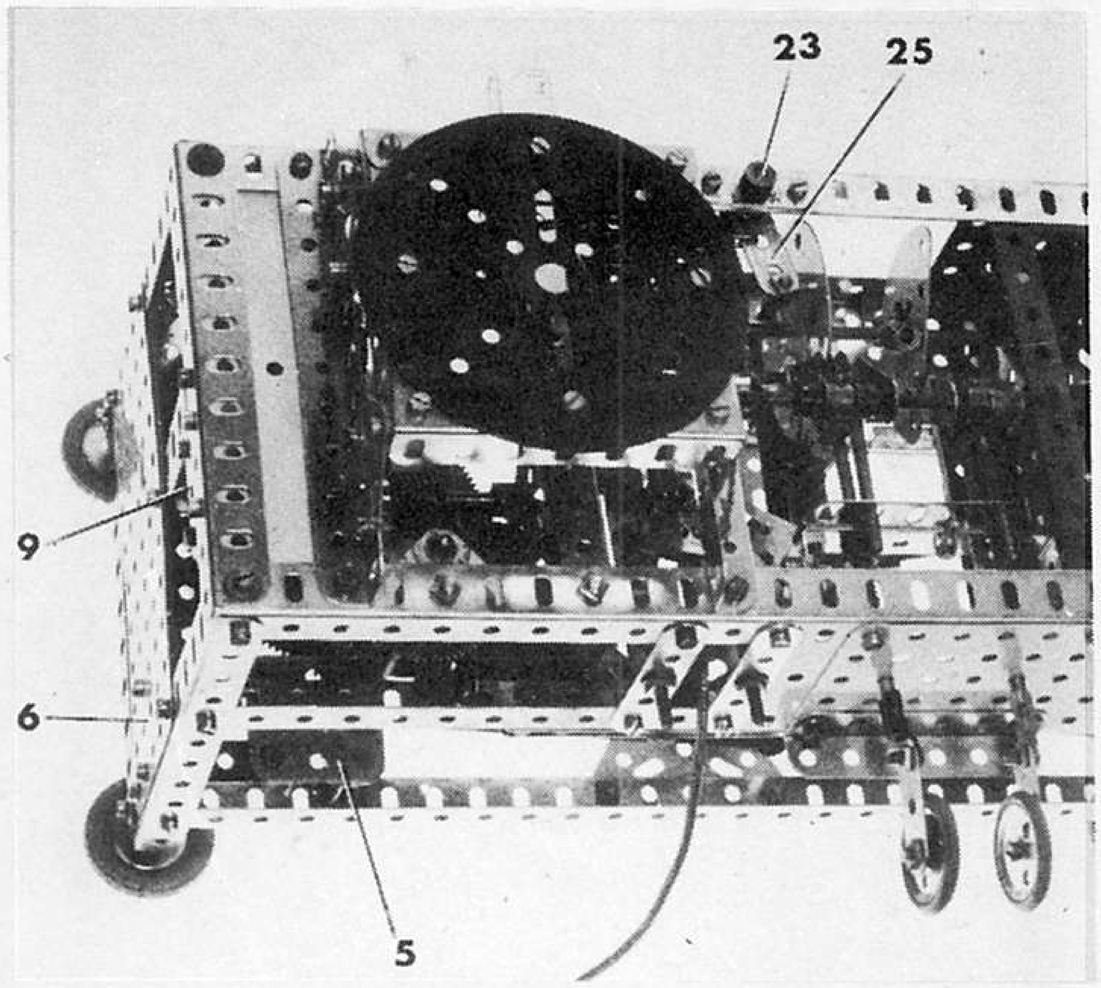


Fig. 3.

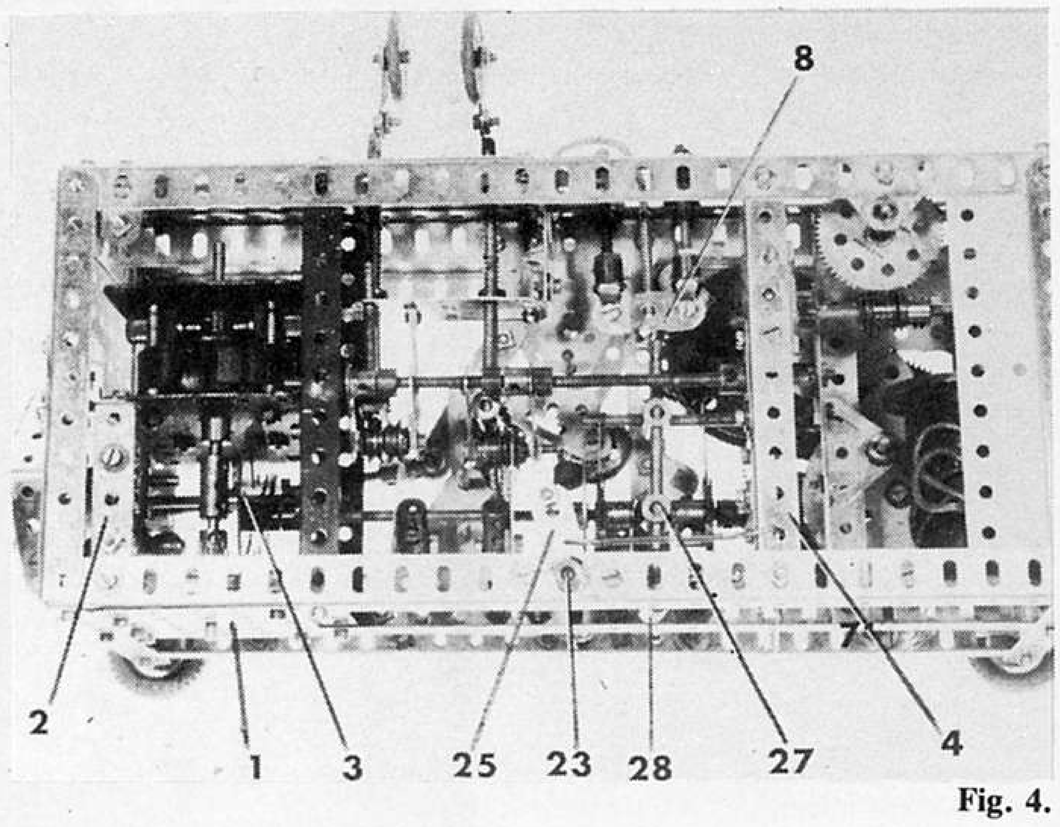


Fig. 4.

on the outside. The Pinion meshes with a 2½" Gear Wheel mounted on a 4" Rod which is journalled in the end Plate and in a Crank bolted to the Flanged Plate. A ¾" Pinion also on the Rod meshes with another 2½" Gear Wheel 3 mounted on a 6½" Rod. This Rod is journalled in a Double Arm Crank bolted to the Flanged Plate and in a Crank supported by a Flat Trunnion and a 5½" Angle Girder 4. This 6½" Rod is the main camshaft from which all required movements are triggered, and we now turn to the trip mechanism for the motor switch.

TIMER DRIVE AND MOTOR SWITCHING

A trip camshaft assembly (Fig. 6) is made by bolting two Semi-circular Plates to a 3½" Gear Wheel by means of two 1⅛" Bolts, using a Coupling, two Collars and some Washers as spacers. This assembly is fixed on a 3½" Rod held by Collars in a 5½" Angle Girder 7 and a Trunnion bolted to a further 5½" Angle Girder 9. A 1½" x 1½" Flat Plate 5 is supported by two 1½" x ½" Double Angle Strips bolted to end Plate 6, and is braced by a 1" x ½" Angle Bracket bolted to Girder 7. A 1½" Axle Rod mounted in Plate 5 and Girder 7 carries a ½" Pinion which meshes with the 3½" Gear Wheel and which is free to rotate on the Rod. The Rod is held by a Crank bolted to Girder 7. The Pinion is driven by a further ½" Pinion on a 5" Axle Rod. This Rod is journalled in Girder 7, Plate 5 and a Trunnion bolted to one of the upper 12½" Angle Girders comprising the main frame. At the upper end of the rod is a 1½" Gear Wheel, driven by a Worm on a 3½" Axle Rod which runs in a Trunnion bolted to 5½" Angle Girder 4 and in a Double Arm Crank supported by a 1½" Flat Girder 9 bolted to the main frame. A 1½" Gear Wheel on the 3½" Rod is driven by a Worm on the drive spindle of another motor. This can be a Power Drive Unit suitably mounted on the end Plate of the main frame. However, as the model is likely to be run for considerable periods of time, the author used an ex-Government 24v. motor which is designed for continuous duty.

The actual details of the drive from motor to trip camshaft assembly will vary, depending on the rate at which the model is required to operate. In the example described, the overall reduction ratio is 22743:1 and it will trigger one cycle of operation every 3½-4 minutes, or so. For other rates, the gear ratios will need to be modified to suit.

The trip camshaft assembly must rotate anti-clockwise when viewed from below, and as it rotates, the Semi-circular Plates impinge on one or other of the rollers on a rocker assembly (Fig. 6). This rocker assembly is made up of two Face Plates spaced apart by a 1⅛" Bolt and a ¾" Bolt. The 1⅛" Bolt carries a 1" loose Pulley suitably spaced with Washers, and the ¾" Bolt carries a loose ½" Pulley, this time between the Face Plates. The rocker assembly is mounted on a 3½" Axle Rod, journalled in a Trunnion bolted to Girder 9, and in Girder 4. As the trip camshaft assembly revolves, each cam in turn bears against either the 1" or the ½" pulley and causes the rocker assembly to slowly rock first one way and then the other. The rocker assembly is held firmly at each end of its movement by a heavily-sprung lever 10. The lever is made by bolting together two 5½" Strips, with a Crank at one extreme end. This end is pivotted on a 2½" Rod held in a Crank bolted to one of the main frame 12½" Angle Girders. The other end of the lever is guided in a slot formed by two 3½" Narrow Strips 11 which are bolted together at each end by a ¾" Bolt and spaced apart by two Washers at each end.

A pair of 2½" Triangular Plates (one of which is seen at 12) are bolted to two of the main frame 12½" Angle Girders in the position shown, and carry in their end holes a 3" Rod, held in place by two Collars. Pivotted on this Rod is a bell crank assembly 13 made from two 1½" Corner Brackets space apart by two ½" Bolts. Threaded onto one of these Bolts are the ends of two Tension Springs, the other ends of which are looped over a ¾" Bolt fixed in the main frame. On the other ½" Bolt of the bell crank assembly is a 1" loose Pulley which, by the action of the Tension Springs, is brought to bear against lever 10. The lever bears against a ½" Pulley which is free to rotate on a ¾" Bolt fixed between two 1½" Strips bolted to the two Face Plates of the rocker assembly. As the rocker operates, this latter ½" Pulley comes to rest alternately against the lever guide 11 and a stop on lever 10 made from two 1" Triangular Plates.

At this point, check the action carefully to ensure everything runs freely with no fouling of bolt heads, etc. As the rocker camshaft slowly rotates, the rocker should slowly turn against the tension of the Tension Springs until it passes a 'dead centre' position. At this point the Springs should force the rocker over suddenly into its next position. As the camshaft continues to rotate, the action should then take place in reverse, returning the rocker to its initial position.

The switch of the E15R motor is connected to the rocker assembly by a system of levers. A Bolt through the motor switch arm is screwed into the centre hole of a Coupling and locked by means of a Nut. A 3½" Axle Rod 26 is free to slide in the Coupling and carries on it two Collars and a Small Fork Piece. The Fork Piece is pivotted in one end of a lever 14 by a Pivot Bolt with two Nuts locknutted together. The lever is made from two 3" Strips spaced apart by two Collars and bolted together with two ⅜" Bolts. A Pivot Bolt at the other end of lever 14 connects it to one end of a link 15 made by bolting together two 4½" Strips. To the other end of the link is bolted a Crank in which is held a 1½" Rod. This Rod is loosely held in two 1½" Strips bolted to the Face Plat es of the rocker assembly, and is located by two Collars (Fig. 6). The fulcrum of lever 14 is a 1½" Rod 16 held in a Crank at the end of another lever 17. This next lever is made from two 2½" Strips bolted together by two ¾" Bolts and is pivotted on a 3" Rod 18 journalled in two 2½" Triangular

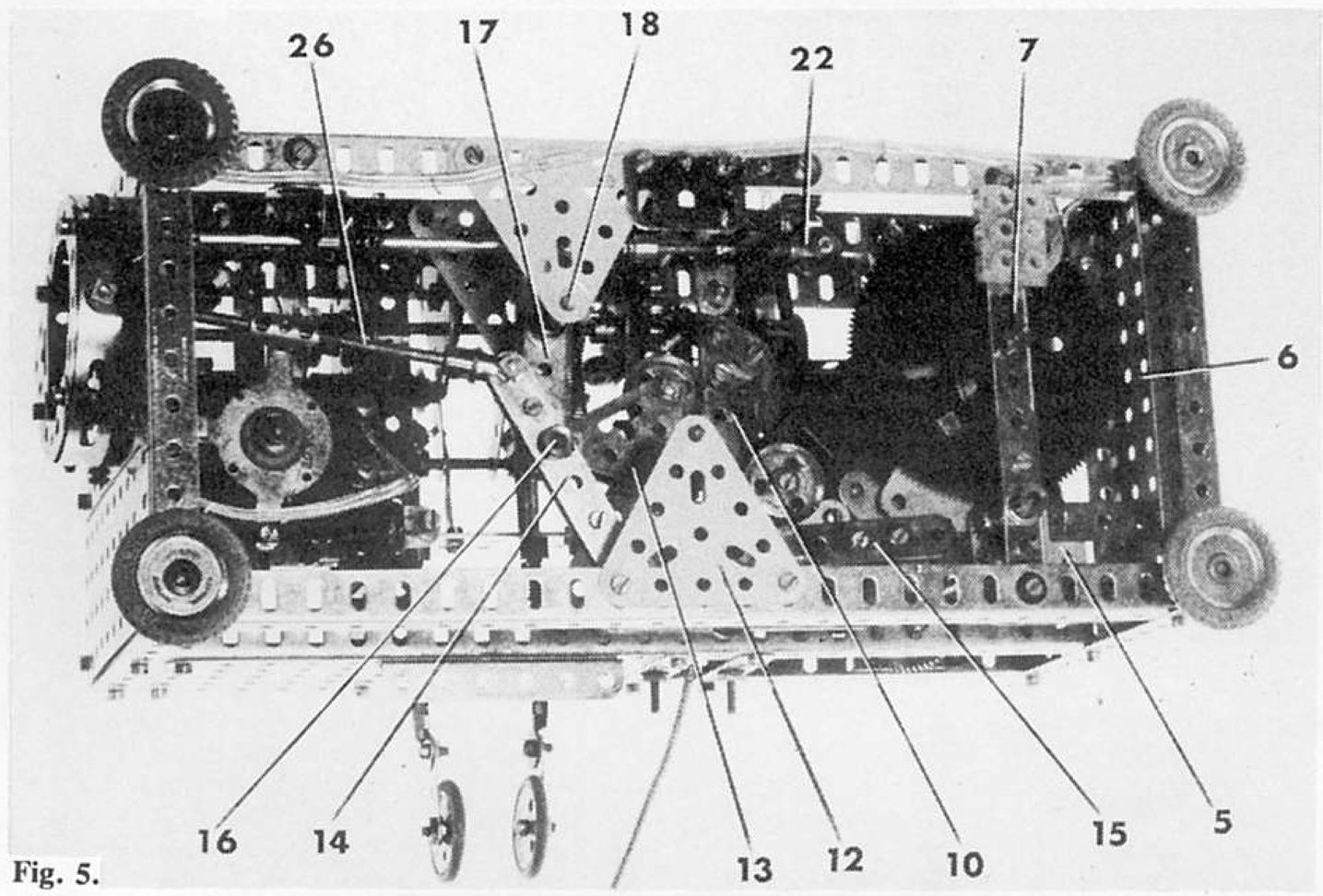


Fig. 5.

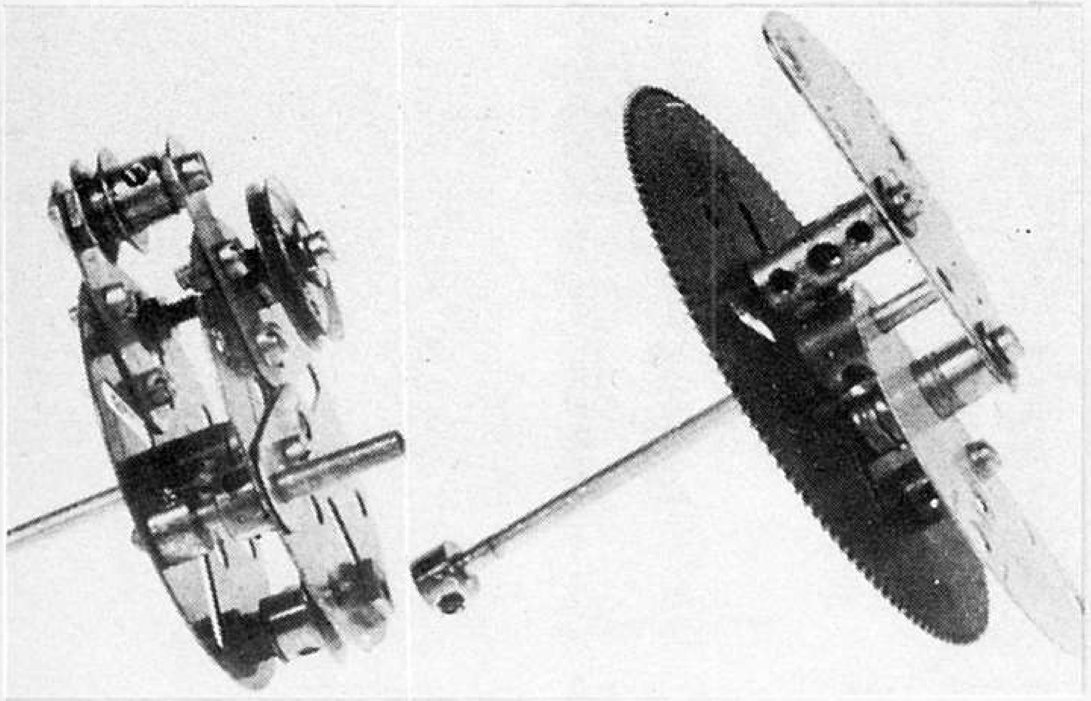


Fig. 6.

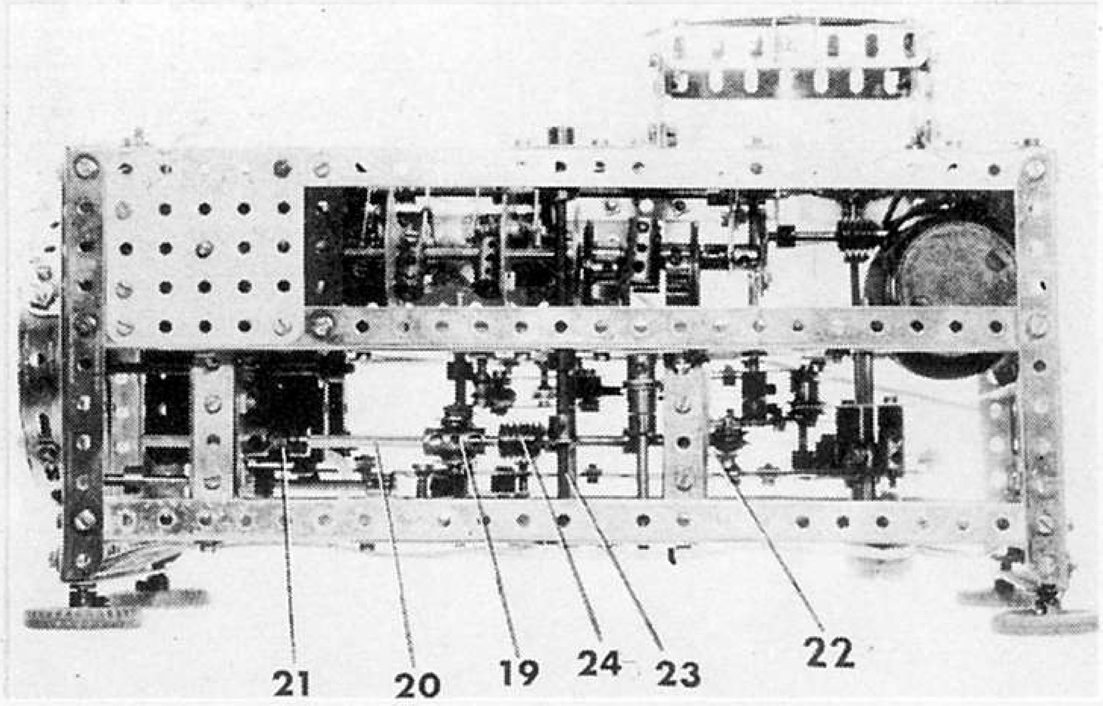


Fig. 7.

Plates bolted to the main frame. The end of the second lever which is obscured by the Triangular Plate in the illustration is extended by a pair of 2" Slotted Strips. A Coupling 19 is held by its centre transverse plain hole by a ¾" Bolt passed through the slots of the two Slotted Strips. A 4" Rod with Keyway 20 is held in one end of the Coupling. The Rod carries a Collar and a Compression Spring 21 and slides in a Double Arm Crank bolted to a 2½" Angle Girder fixed to a 2½" x ½" Double Angle Strip bolted to the main frame. A Key Bolt in the Double Arm Crank prevents the Rod from rotating, while still allowing it to slide freely.

In the other end of the Coupling is a 3" Rod which carries a Worm 24, a Collar, and a Small Fork Piece 22. The Rod slides in a 2½" Angle Girder fixed to another 2½" x ½" Double Angle Strip bolted to the main frame. A 5½" Rod 23, journalled in the 12½" members of the main frame, carries a Pawl which engages Worm 24, two Collars and a trip lever 25 consisting of a Threaded Pin held in the end hole of a Crank. A Tension spring made from a length of Spring Cord and two Hooks is hooked into the trip lever and the other end into some suitable point on the main frame, this holding the Pawl in engagement with the Worm. The main camshaft 6½" Rod carries a cam made from a Collar held by a Bolt through one of its threaded holes in the periphery of a Bush Wheel.

When the main camshaft completes one revolution, the cam operates the trip lever, releasing the Pawl from the Worm and thus allowing the Compression Spring 21 to release the lever linkage between the E15R Motor and the rocker shaft. The rod assembly 20 is reset by the action of the rotating trip camshaft assembly, which acts against a ½" loose Pulley held in Fork Piece 22 by a ½" Bolt with two Nuts.

The motor switch linkage is completed by a stop made by bolting a Threaded Crank to one of the motor sideplates. A 1⅛" Bolt with Nut in the Threaded Crank's boss locates against a Collar fixed to the short lever arm of the motor switch. A small rubber band is also looped over a ⅜" Bolt held in the remaining long arm of the motor switch and over another ⅜" Bolt held in an Angle Bracket bolted to the motor base flange. The stop is adjusted so that the rubber band just holds the Motor in the 'off' position. The Collars on Rod 26 are positioned so that operation of the rocker assembly just switches on the E15R Motor.

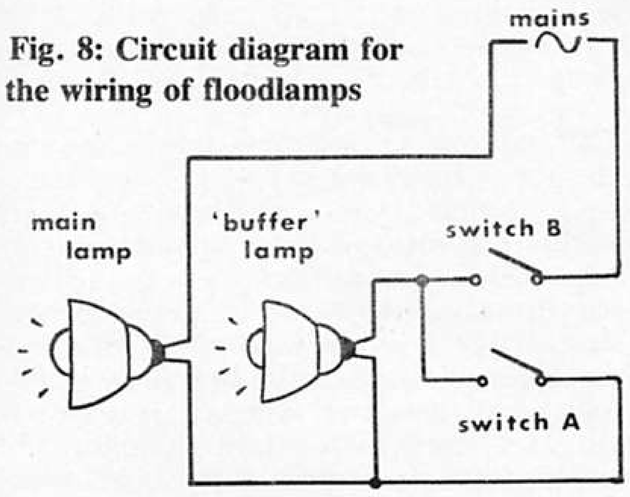


Fig. 8: Circuit diagram for the wiring of floodlamps

LIGHT SWITCH MECHANISM

Exact details of items to be fitted to the main camshaft will of course depend on what equipment is to be driven. In the case of the Camera Lapse Timer, it is required to:—

a) switch on two lamps in series
b) short out one lamp, leaving the other at full brightness
c) operate the camera, taking one picture
d) switch the lamp off

It must of course be pointed out that tinkering with mains electricity is *not for the inexperienced*. However, the mechanisms described here are *not* connected to the mains and are therefore quite safe. The cams operate push rods which in turn activate a normal domestic light switch. Get an electrician to wire the mains switch and you are perfectly safe. The mains switch used is a double-gang on/off switch with rocker switches that are very light in operation. The circuit for the floodlamps is detailed in Fig. 8.

Each light operating cam consists of one or two Semi-circular Plates mounted on the main camshaft by means of a Coupling bolted to the Plates. One cam is made of two Semi-circular Plates bolted together to form a 270° sector, while the other is a 180° cam made from one Plate. Sliding bearings for the pushrods are formed by a 5½" x 2½" Flat Plate on the side of the main frame and a 3" x 1½" Double Angle Strip. One end of the Double Angle Strip is bolted to the 5½" x 2½" Flanged Plate, while the other end is braced by a Flat Trunnion bolted to a 2½" Angle Girder supported in the main framework. A 2½" Flat Girder is bolted to the 3" side of the Double Angle Strip (Fig. 3). Each pushrod assembly is a 2" and a 4" Rod linked in parallel by means of a Coupling. Three Compression Springs on each 4" Rod retained by a Collar return the pushrods after each operation. Each pushrod is actuated by a cam follower assembly, made up from a Crank and a 1½" Strip linked by a 1⅛" Bolt. Mounted on each Bolt, between the Crank and the Strip are two ½" loose Pulleys. The cam followers are pivotted on a 6½" Rod mounted in the 5½" x 2½" Flanged Plate and in Angle Girder 4. They are located by a total of six Collars. One of each pair of the ½" Pulleys is arranged to follow its respective cam, while the other bears against the Coupling of its respective pushrod. Each pushrod is extended by a Rod and Strip Connector and a 1½" Strip and carries a 1" loose Pulley with Rubber Ring loosely mounted on a ⅜" Bolt.

CAMERA RELEASE

Fig. 1 depicts a camera in use which has no cable release facility. The release is operated by a lever made from a 5½" Narrow Strip pivotted at its centre with two 1" x ½" Double Brackets linked by a 1" Rod which is retained by Spring Clips. The lower end of the lever is connected via a 2" Slotted Strip to a Single-throw Eccentric mounted on the end of the main camshaft. Adjustment for various cameras is by means of the Slotted Strip. For cameras with a cable release, a more robust release mechanism is provided by a pair of Triple-throw Eccentrics mounted in tandem on the main camshaft. The throw is ⅜". Loosely mounted on the camshaft between the eccentrics is a Coupling 27 held by its transverse centre hole. Two 3½" Rods are held in this Coupling and in another Coupling 28 that is bolted to the side plate of the main frame. Another Coupling is free to slide along the two Rods and a 2" Rod held in its transverse centre hole links the arms of the two Eccentrics.

A camera cable relase is clamped betweeen two 1½" Strips 8 which are supported at each end by an End Bearing. A 2" Screwed Rod is held by two Nuts in each End Bearing boss and at their other end in two 2½" Strips bolted to the main frame. Positioning and adjustment of the cable release is by means of the Nuts securing the 2" Screwed Rods to the 2½" Strips.

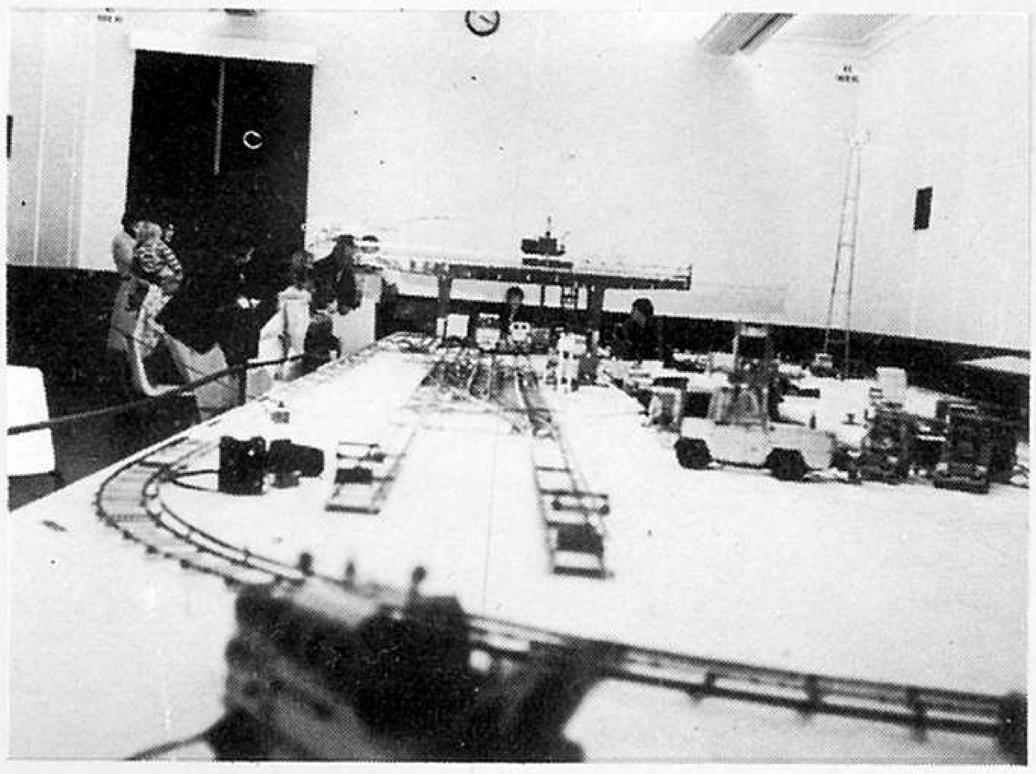
CAMERA SUPPORT PLATFORM

This is a pair of 4" Circular Plates bolted together for rigidity and to a square frame of four 3½" Angle Girders. The platform is supported by four Flat Trunnions fixed to two 5½" Angle Girders bolted across the top of the main frame. The remainder of the sides are filled in with two 7½" x 2½" Strip Plates, four 5½" x 2½" and one 4½" x 2½" Flexible Plate. A detachable top cover plate is made from one 4½" x 2½" and two 5½" x 2½" Flexible Plates, and is located by two studs made from ½" Bolts and a 1½" Angle Girder.

The external drive is protected by a guard made from three 2½" Curved Stepped Strips, a 1½" Corner Bracket, three Formed Slotted Strips and a bent 3" Strip held together by Angle Brackets and attached to the end plates by Angle Brackets. The four feet are 1" Pulleys with Tyres bolted with ⅜" Bolts to two 5½" Angle Girders bolted across the ends of the main frame.

PARTS REQUIRED

2 - 2	1 - 18b	36 - 59	7 - 120b
2 - 2a	4 - 22	10 - 62	4 - 126
3 - 4	4 - 22a	1 - 62a	6 - 126a
4 - 5	2 - 23a	4 - 62b	2 - 130
3 - 6	5 - 23b	12 - 63	1 - 130a
10 - 6a	1 - 24	1 - 64	3 - 133
6 - 8	1 - 25	3 - 70	4 - 142c
15 - 9	3 - 26	2 - 72	2 - 146a
4 - 9b	2 - 26c	1 - 74	1 - 147a
3 - 9d	2 - 27a	4 - 76	2 - 147b
1 - 9f	1 - 27b	2 - 77	2 - 155
2 - 11a	2 - 27c	2 - 81	2 - 166
2 - 12	1 - 27d	1 - 82	1 - 173a
1 - 12b	1 - 28	3 - 90a	1 - 188
2 - 14	3 - 32	1 - 103f	2 - 191
1 - 14a	2 - 43	1 - 103h	6 - 192
1 - 15	1 - 47a	2 - 109	2 - 195
3 - 15b	2 - 48	8 - 111	2 - 212
6 - 16	3 - 48a	9 - 111a	5 - 214
1 - 16a	1 - 52	10 - 111c	3 - 215
3 - 16b	1 - 52a	6 - 111d	1 - 230
5 - 17	3 - 55a	1 - 115	1 - 231
4 - 18a	1 - 58	2 - 116a	2 - 235b
1 - E15RMotor			2 - 235f
1 - Power Drive Unit			



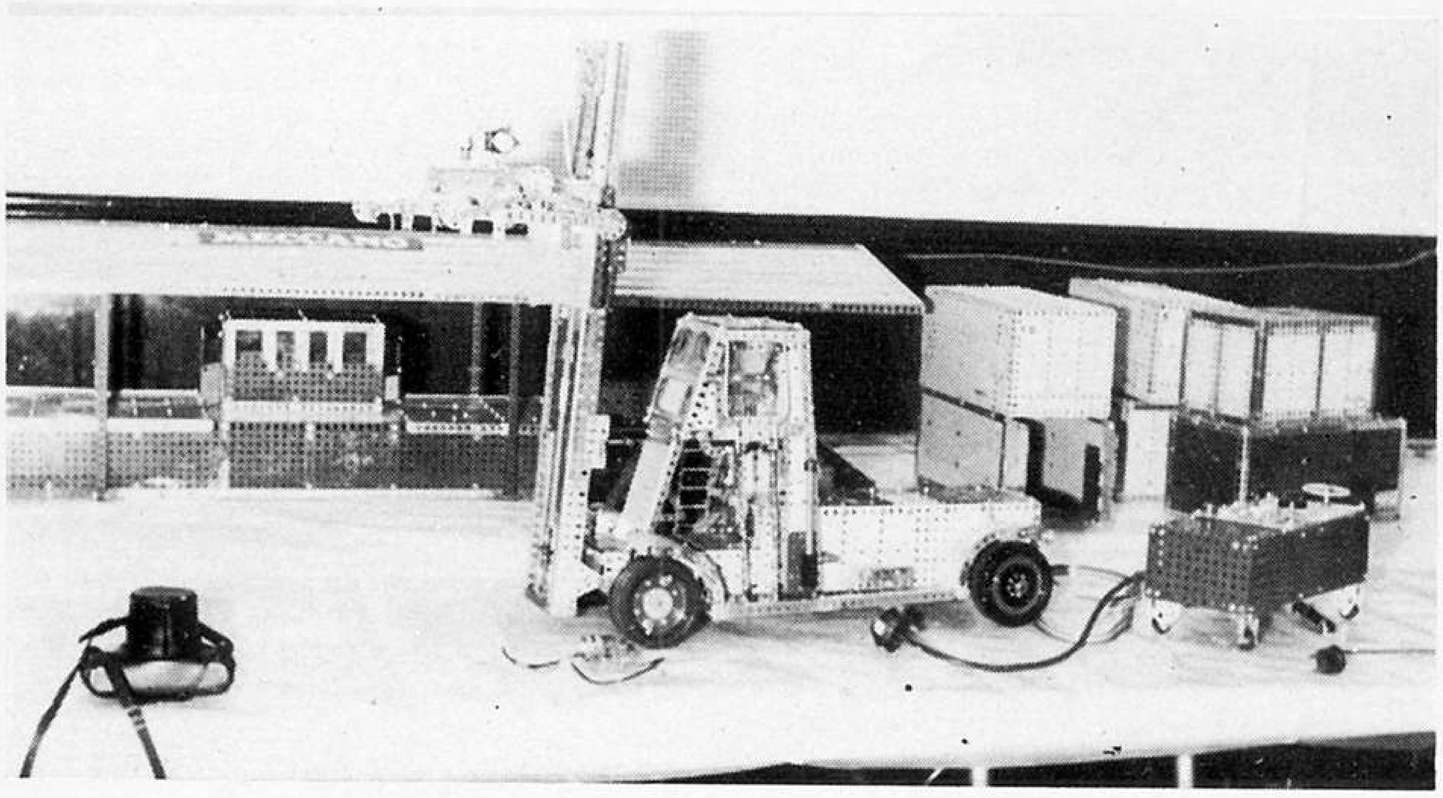
A general view of the sidings and stacking crane all built by C. Roth.

THE JO'BURG GIANT

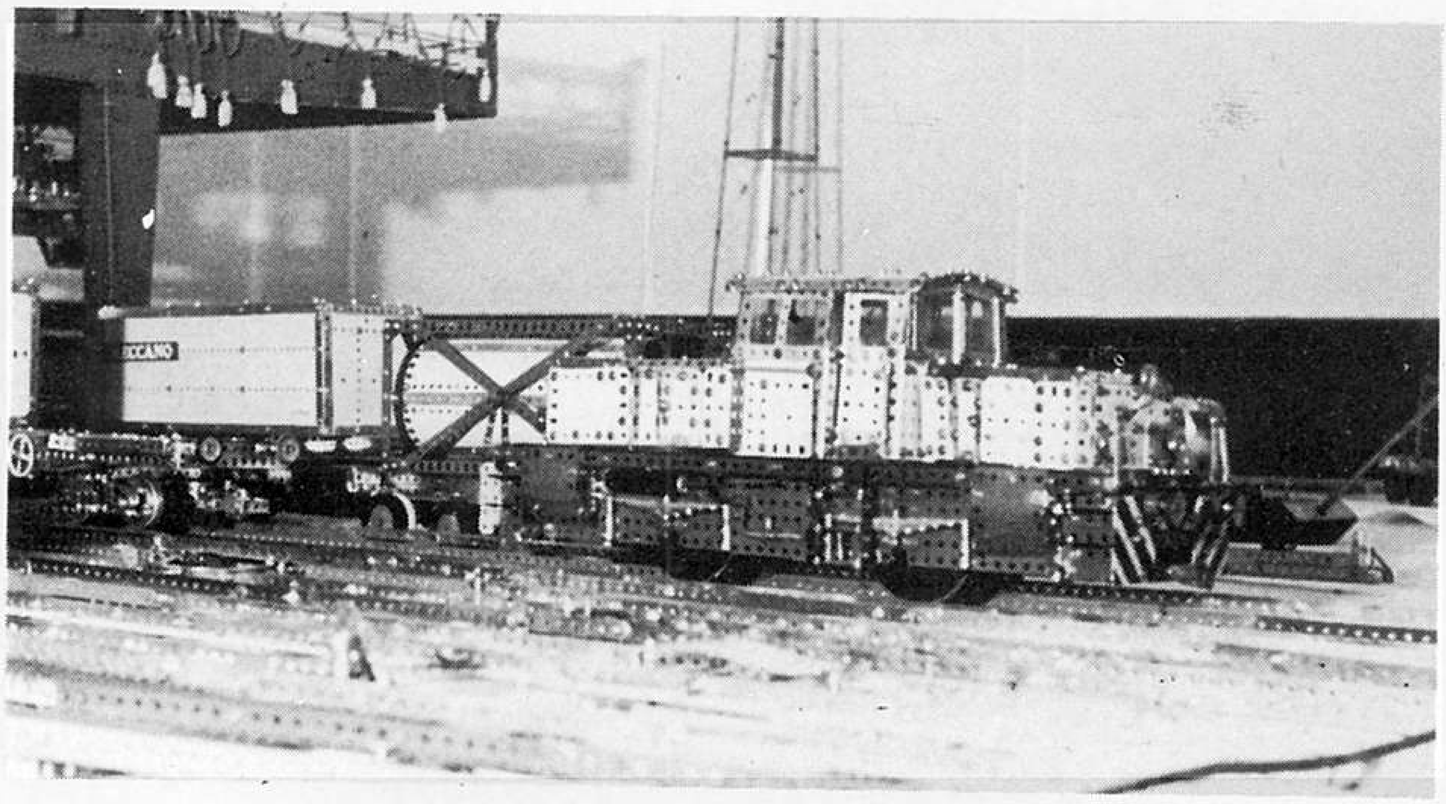
A description of the Johannesburg Meccano Hobbyists' enormous project at last year's Rand Hobbies Fair in South Africa, by CHARLES ROTH.

THE train carrying container CFR 9001 has just pulled off the main line. After shunting the guards van into siding 9, the locomotive shunts the flat car into one of the three sidings under the stacking crane which now transfers the container to one of the trailers standing on the loading area. This trailer and its truck tractor (radio controlled) is now on its way to deliver container CFR 9001 to the XYZ Manufacturing Company on the other side of town. Meanwhile, the remote-controlled straddle carrier is stacking empty containers three-high in the holding area. At the same time two forklift trucks are busy sorting out more containers, and a small forklift loads another.

Below; The Hyster Challenger 800 forklift with its controlbox, in front of the Loading Shed and 6 of the containers. Built by Charles Roth.



Below; One of the Shunting Locomotives built by Dave Feinstein.



This was the scene at the JOHANNESBURG MECCANO HOBBYISTS' Meccano Container Depot displayed at the Johannesburg City Hall for the 7-day RAND HOBBIES FAIR last summer. The five members of the Club all pooled their resources and slaved for 16 months to build what is believed to be the biggest single Meccano project ever attempted.

Erected on an area of 900 sq. ft., the 60 ft. by 15 ft. giant reproduced a 1:15 scale layout featuring just about everything that is used to move containers. The star of the show was a Stacking Crane (which ran almost non-stop during the whole of the exhibition) modelled on a crane built by ARROL for the British Railways and operating in the Willesden Freightliner Depot at Gushetfaulds; Scotland. A gantry of box-like construction, the model was 10 ft. long by 3 ft. wide by about 3 ft. high and it performed all the functions of the real thing, operated through a Meccano-built control box. Travelling on 12 ft. Meccano part-built rails, its four bogies, each running on three 1⅛" Double Flanged Wheels, had a P.D.U. each, while the carriage traverse and slewing movements also had their own separate drive motors, as did hoist and 'grab'. The grab, which was operated by opposing 11½" Screwed Rods, could handle Meccano containers of 12½", 14½", 18½" and 24½" lengths, all by 6½" width and 6½" height.

The carriage with three 1⅛" double-Flanged Wheels at each side, ran on rails on top of the gantry. As in the bogies, the extra flange was formed by a 1¼" Gear Wheel driven by a Worm. Hoisting was done by an 8-fall rope controlled by a motor just above the 'grab' which was slewed by two Quadrant Gears working on the inside of four Large Toothed Quadrants.

In all, there were eight motors with the four travel motors being wired together. All wiring had to be installed before the box sections were closed up. The wiring to the four motors on the carriage was unique in that it was brought up the legs to each corner and from there to the cab on the carriage, with the wires slung from sliding hooks and kept from fouling by Meccano Loaded Sacks. The 'live' wires came from one side and the 'earth' wires from the other. The wiring for the two motors by the 'grab' went

down the centre of the hoisting shaft which was kept rigid by two sets of ½" Pulleys running on the corners, top and bottom.

The rails of 3¾" guague were all built of Meccano parts with a rail-tie every 6". There were ten points and six un-coupling sections comprising 5½" x 1½" Flexible Plates which were raised to lift the couplings on the flat cars as one some toy trains. The points and uncouplers were operated from a 'signal box' with the opposing points being connected together. There were three sets of rails and four slidings under the Stacking Crane and two more sidings opposite. The sidings were connected to a main line which went right round the outside of the layout. Power to the locomotives was supplied by an outside 3rd rail (raised ¼" above the rails) which was insulated by ⅛" thick clear perspex strips shaped to the Insulated Fish-plates.

There was about 220 ft. of rail in total, including 120 ft. of main line, the straights being built of Angle Girders with 12½" Strips on the inside and the curves of two overlapping 12½" Strips with a Fishplate on each inside joint. All the Points were spring-loaded to stay 'open' so that only a single connections to the 'signal box' was necessary.

Two Diesel Shunters were used to shunt the seven flat cars and one guards van around. These shunters were scaled-up versions of HO German diesel locomotives, each having four flanged wheels built up from two Ball Thrust Race Flanged Discs and one 4" Circular Plate. The drives were by ½" Pinions working on Gear Rings which were fixed on the flanged wheels which, in turn, were loose on the axles. The ½" Pinions were driven by Helical Gears, in one locomotive direct from the motor with a single pile gearbox and, in the other locomotive, from the motor through a torque converter adapted from the Book of Standard Mechanisms of 1936. Each locomotive had two electrical pickups made from five Pawls without Boss.

Seven 33" long flat cars were copied from the South African Railways, with pivots arranged to carry containers of all the sizes mentioned earlier. There were 25 containers of various types, and in all colours, including three made of Plastic Plates and Angle Girders. Seven Truck Tractors and Trailers comprised the road vehicles, two of which were radio-controlled and one remote-controlled as also was a Breakdown Lorry. Four of the trailers could carry two 14½" containers each and the others one. One small remote-controlled forklift was used to load the open-ended containers.

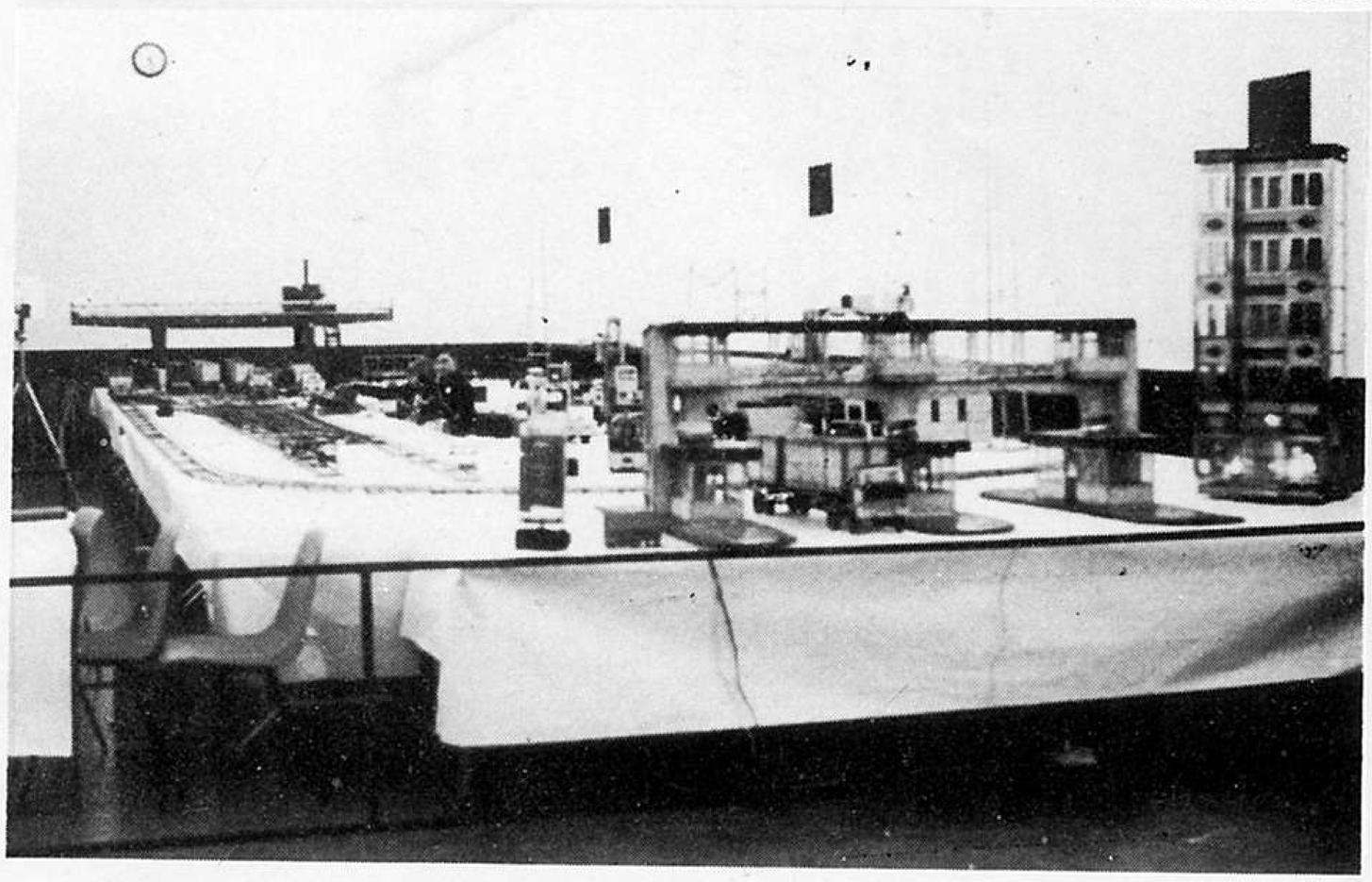
The remote-controlled Straddle Carrier, which could stack three containers high, was also of the type used by the South African Railways. All the eight wheels could be steered and the rear four were driven by a motor on each side. Steering was effected by two P.D.U.'s housed under the roof, while hoisting was done by a motor on the roof. The 'grab' was operated by four Cams (Part No. 131) which were driven by another P.D.U. while the 1" lateral movement was worked by a further motor. There were seven motors in all, including Meccano and non-Meccano units.

Six motors were included in the side-loader which was a model of a Lancer Boss 2500. All the movements of the prototype were present, including travel of the driver's cab from side to side. Owing to the limited space, only a light-duty motor could be fitted for hoisting and only plastic-built containers could be lifted. More powerful, however, was the front-loader fork-lift, scaled up from a model of a Hyster Challenger 800, which had five operations, each with its own motor.

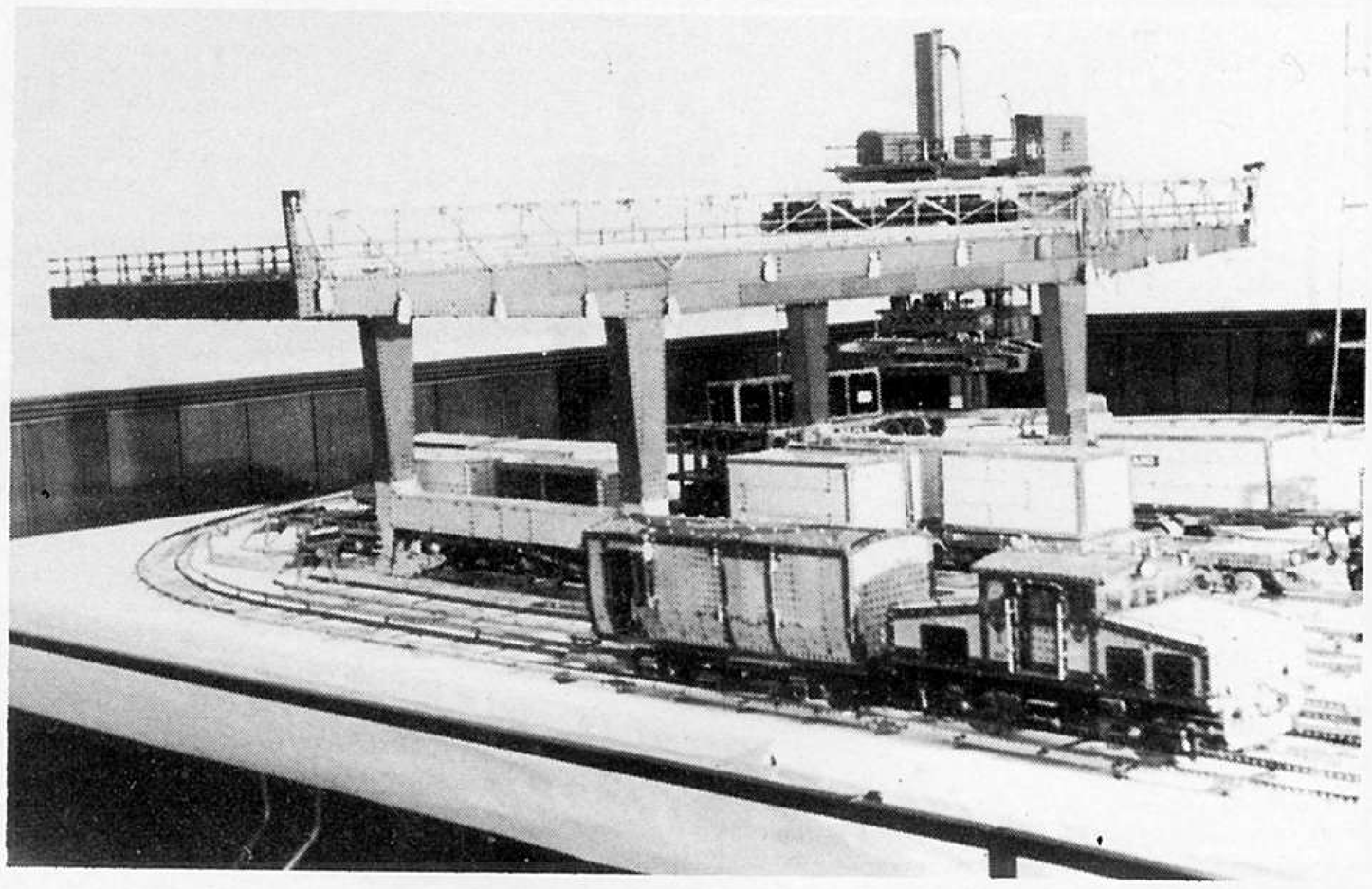
Each of the container-lifting vehicles had a different method of 'grab', the most successful being the Stacking Crane's which hooked under the top bolts on the ends of the containers.

To increase layout realism, several static models were included: models of garage and workshop with two diesel pumps, a 6 ft. by 2 ft. loading shed, an entrance gate of the type used on all the South African Railways Container Depots, and an office block which was really the Automatic Elevator with an extra floor added and a building front. The Elevator was built from Model Plans No. 58 by Dr. K. W. Cameron of the U.S.A. Also provided were two floodlight towers, a revolving sign advertising the Johannesburg Meccano Hobbyists' Container Depot, a Mini Moke, a panel van, and various small crates, with security supplied by a big gun mounted on a semi-tracked army vehicle built from a Meccano Army set.

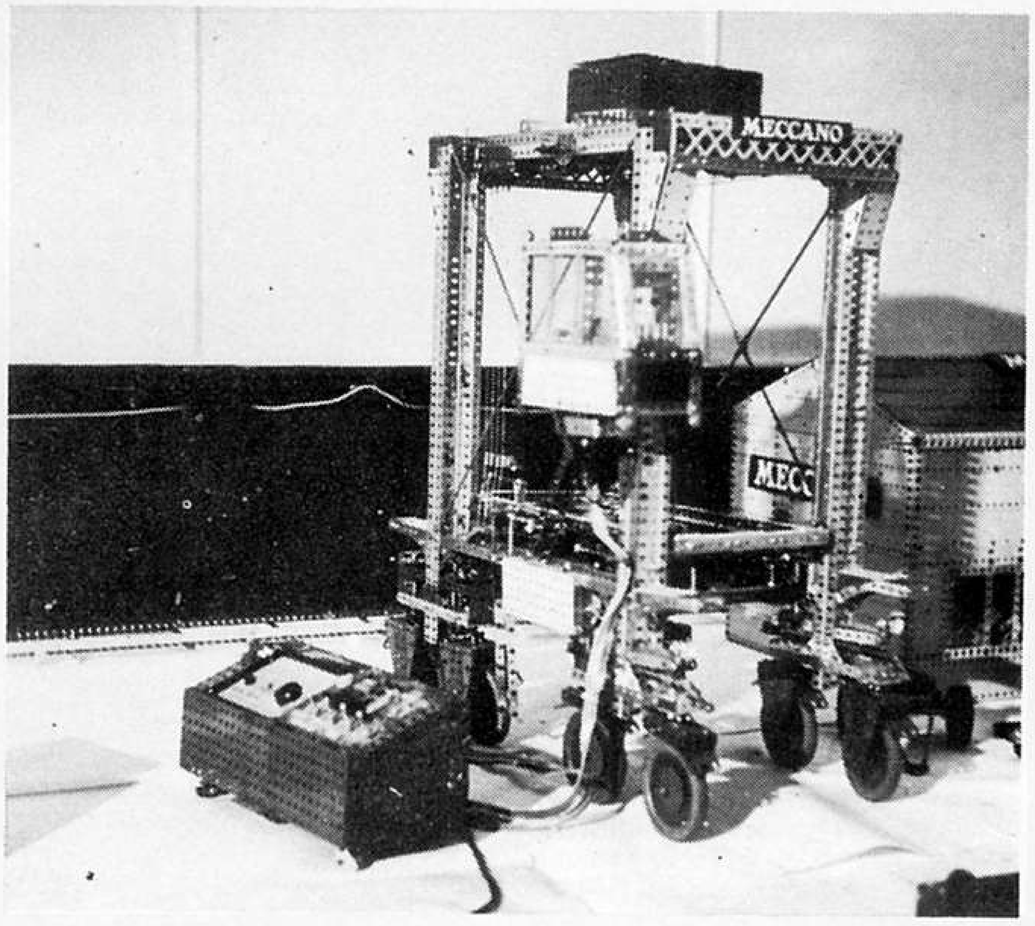
The five J.M.H. members who 'slaved' over this surely record-breaking project were: Ian Burford, Lionel Chimes, Dennis Else, Dave Feinstein and Charles Roth (Chairman), who designed the whole layout. Thanks must also go to Andre Else and two other sons of the members who helped to run the show during the seven days of the Hobbies Fair.



A general view of the layout with the Automatic Elevator on the right and the entrance gate, built by Dave Feinstein, in the foreground.



Above: Stacking Crane, Shunting Locomotive and Guards Van all built by C. Roth.



Right: The Straddle Carrier with its control box built by C. Roth.

MECCANO CLUB ROUNDUP

All Meccano Clubs are invited to submit reports for these pages. Report should be approx. 350–400 words long and should reach us by the end of the second month before the month of publication.

GREENFORD MECCANO SOCIETY

The first meeting of Greenford Meccano Society was held at Greenford Community Centre on Monday 2nd October 1978, seven members attending with a possible three more at the next meeting.

Officers elected were David B. Nye, Chairman, and Edwin J. Bentley, Treasurer. It was decided to hold the elections for Secretary and Committee at a future date as membership allows. Dates for future meetings were set for December 4, 1978, and in 1979: February 5, April 2, June 4, August 5, and October 1, this last being our first A.G.M.

We are grateful for all the help and assistance given by Eileen Casey and Angela Birbeck, Secretary and Warden, respectively, of the Community Association, and the local press before our next meeting.

We hope to hold a mini exhibition in 1979, if, as I am sure we will get support from established clubs, and we hope our name will be seen more as we grow in numbers. If anyone aged 16 or over is interested in our Society, please send an S.A.E. for more details which I will be glad to provide.

David B. Nye, Chairman
Greenford Meccano Society
129 Allenby Road, Southall,
Middlesex, UB1 2EZ.

GUISBOROUGH MECCANO CLUB

The Guisborough Meccano Club was 2 years old in October. Earlier, we took the school holidays off and when we started back we lost three of our members who decided that they were too busy with homework to attend any longer. We have also lost another member who did not approve of my sort of discipline, i.e. that he should do as he was told and pull his weight. However, it left me with several vacancies which I filled from my waiting list and club membership has now risent to fourteen. Very crowded we are too!

We went to the Darlington Exhibition in two vehicles, where we exhibited for the first time. One of my juniors, Robert Anderson, gained first prize in that section. Only 10 years of age, he is really good and I am expecting great things from him. The exhibition was first class and it was quite an experience for my children.

As I mentioned in an earlier 'Roundup', I was invited up to our local school, Kemplah Primary, to give a talk on Meccano. This school has excellent parent participation and parents give talks on different subjects. I gave a condensed history of Meccano, showed different types of motors and demonstrated the steam engine, letting pupils play with the models that the club members have made. I was only supposed to talk to one class, but ended up giving my talk to the whole school! The result of the talk was that I was asked to form a club at the school, which I did. This club is now going very well and we had three girls (!) join us after the summer holidays. They are doing very well.

Before breaking up, we had an Open Night during which parents could come and see the models that their children had built. It proved a huge success.

A. Ing,
Guisborough Meccano Club,
5 Scarteen Close, Guisborough,
Cleveland.

HENLEY SOCIETY OF MECCANO ENGINEERS

The meeting of 14th October was an extremely full one. We usually manage to arrange a focal point for our evenings, often in the form of a talk or film more or less of direct interest to Meccano modellers. This time we managed two separate sessions, each of great interest.

Dick Hogg, who had appeared out of the blue with his Meccano gyroscopes at the Henley Exhibition, was persuaded that his specialist knowledge could be put into simple terms and he provided a succinct description of how a gyroscope works, and why it performs under conditions of deviation as it does. He illustrated this with Meccano demonstration models, beautifully made; and one was put in mind of how Frank Hornby strongly encouraged people to do exactly this.

Next, Michael Edwards, fresh from the successful exhibition at Brighton Museum of his model of Volk's Electric Railway, presented a series of slides with a recorded commentary made by Magnus Volk's son, Conrad. Volk the Elder was a remarkable pioneer electrician whose Railway was the first and, still running, is the oldest such undertaking in Britain. Michael's excellent model has created considerable interest in non-Meccano circles and illustrates a fascinating corner of transport history.

There were a number of other models present including Michael's remote-controlled Leyland National bus. Ernest Chandler brought his saw-bench and portable engine, while Paul Edginton had several models, especially a fine 'Bonanza' aircraft. Ray Senior mounted his customary mini-exhibition and Chris Breeze flew a remote controlled, round-the-pole aircraft, the electricity for the motor passing through the control lines. Tom Marlow had a fully compensated crane bogie with positive drive to all axles, and your correspondent brought a 3-ton Leyland army lorry made from 1939 Mechanised-Army parts.

Bob Ford has decided that ⅛th full-size railway locomotives are perhaps just a bit too big, and offered a 5½" long Traction Engine for a change; and Tony Homden is hatching another robot mechanical wonder which bids to outshine his previous meccano Arm of honoured memory. Nor could we overlook Bill and Peter Roberts' always interesting and varied collection of models. Bill has developed an unusual 3-differential vehicle. Finally, in this group of stalwarts, Eddie Oatley showed a characteristic automatic level-luffing crane, one of his specialities.

We were pleased to welcome new members to Henley—Terry Allen and Nick Rodgers who brought a Combine Harvester and Blocksetter respectively, both improved 10-Set models, and both very good too.

It is appropriate to record that one of the greatest pleasures of the Henley meetings is the splendid food provided by Betty Wright and this evening was no exception. Our cordial thanks to both her and Mrs. Wright, Senior, for their indispensible contribution. Anyone interested in the H.S.M.E. should contact Geoff Wright at 165 Reading Road, Henley-on-Thames, Oxon RG9 1DP.

Alf Reeve.

MIDLANDS MECCANO GUILD

The 23rd Meeting of the Midlands Meccano Guild was held at Alcester, Warwickshire on Saturday, September 30th, 1978 all day. From early morning members journied to Alcester and by mid-day the hall was practically full of models of all sorts of subjects, and of all sizes, everyone obviously enjoying themselves, renewing friendships, talking of past models and the present ones. After refreshments at a local hostelry, back to the business of the day.

At 3 p.m., the Chairman called order to introduce several potential new members, and to explain that the afternoon was 'Free Roaming' until tea at 4.30 p.m. The Annual General Meeting followed at 5.30 p.m. and, in the absence of the President, the Chairman presided.

Apologies were received from 10 members. Bob Faulkner, being ill, missed his first meeting since 1965 and Mike Walker missed his first meeting in five years due to transport difficulties. The Hon. Secretary reported a very successful year for the Guild; members had displayed models at many exhibitions throughout the country. The Guild Stand in the Special Features Section of the Town and Country Festival won the cup donated by a local newspaper for the best Stand in the section, this being by public vote based on education, entertainment and presentation. Four members featured on the Nationwide BBC T.V. programme with their models.

The very successful re-birth of the Guild Gazette has made two issues since last October, a very creditable effort on the part of the producers.

The Guild has 64 adult members here and 8 overseas, several junior members and 3 under 14 years. Congratulations were expressed to 3 members who are entering University. Grateful thanks were also expressed to 3 members who are entering University. Grateful thanks were also expressed to Dave Guilluame and Clive Hine who saw that the rooms were ready for our use and who would be clearing up after we had gone. The Hon. Secretary thanked all members for their support during the past year, and hoped for another successful year in 1978/9. Members thanked the Hon. Secretary and accepted the report.

In his report, the Hon. Treasurer reported a small loss on the year's operations, but recommended that the subscription should remain the same. However, he warned of a possible increase next year owing to soaring costs.

The election of Officers was next. The present Chairman and Hon. Secretary were returned by a majority vote, while the Hon. Treasurer was returned unopposed.

It was agreed by all that the Guild should meet on the last Saturday in March and on either the last Saturday in September or the first Saturday in October, 1979. These dates to be confirmed.

Under 'Any other business', Mr. Geoff Wright thanked members for their support at the Henley Exhibition, and stated that the next one was on Friday and Saturday, 31st August and 1st September 1979. He also reported that a Committee had been formed to sort and preserve records of Meccano so that none of our hobby's history will be lost.

The Hon. Secretary's appeal for support for the Stratford exhibition to be held next April or May, was readily agreed.

The meeting closed at 6 p.m., and after a snack and tea at 7 p.m. members were soon making their way homeward.

Ernest Chandler
86 Clopton Road,
Stratford-on-Avon,
Warwickshire.

NORTH EASTERN MECCCANO SOCIETY

During the last six months of 1978 the Society has been seen at several public functions in the area, among them a two day commercial event in Darlington South Park, when several thousand people inspected our display of models in large marque, which housed other trade and interest stands. Bryan Reay's fully automatic 'Sam' Robot attracted attention as it walked to and fro, pouring a cup of lemonade for the amazed spectators, as it stood next to Joe Etheridge's Crane.

In July we were again under canvas when four models of a steam age origin were shown at Masham Steam Rally, they included a Steam Tractor and a Showman's engine by Barry Wilkinson, a 4-4-0 Locomotive and Tender by Michael Gallaher, and a Fairground Cakewalk by Frank Beadle.

The September meeting was very well attended with almost as many models as members. Joe Etheridge demonstrated a large Double Ferris Wheel programmed in sequence, also an Electric Industrial Truck recently featured in the July M.M. and a fine model of the Rocket Locomotive driven by a Meccano Steam Engine. Barry Wilkinson took up most of a large table with his freelance Lorry Mounted Crane, which folded its own jib ready for road travel. David Dalton displayed a Ready Mix Concrete Lorry in the new colours, the drum rotated by a Crane Motor. Michael Pursey one of our Younger Juniors brought a neat model of a Stone Crushing Machine, working businesslike from it's Crane Motor drive. Frank Beadle had a Twin Cylinder Marine engine built from his collection of Blue Gold material.

One of the highlights of the meeting was a slide show presented by Ellis Dudley, showing many of the models at the Henley Exhibition in September, which 7 members had visited and enjoyed the day out. Ellis provided nearly an hour of fine slides, the remainder of the members suitably commented as we inspected at leisure the finer points of the exhibits.

During October a visit was arranged to the Cowan-Sheldon Crane Works at Carlisle, when 7 members spent a most enjoyable day seeing the entire process of building three types of crane from the design stage, through every shop, to the final test area of the finished project, coming away with many ideas on building one of the actual cranes under manufacture.

One of the disadvantages of the Society is the great distances which one is required to travel; one of our members did a round journey of over 300 miles to attend the visit!

The meetings up to November were mainly concerned with final arrangements for our 3rd Annual Exhibition, details of which should appear in a future MM.

Frank A. Beadle (Sectretary)
Greytyles
33 Yoredale Avenue
Darlington DL3 9AN
Co. Durham.

NORTH WEST MECCANO GUILD

Since the last NWMG report appeared in these pages, four new members have joined; these are John Ellis, Peter Greenhalgh, Bert Pollard

and Harry Wolfenden. All are residents of Lancashire, with exception of Peter Greenhalgh who is the first person from Wales to join the NWMG.

Continued satisfactory progress has been made, with the April 1978 Wigan Exhibition being another success, extra pages and more varied articles in the NWMG's own monthly news gazette 'Bits & Pieces', and another very well-attended annual general meeting in October 1978. Members of the Guild have been in attendance at many other clubs' meetings and Maccano model displays, in many cases travelling as a group to share expenses. The financial postition has improved so much that the annual subscription has been reduced to £2 for adults, from its former figure of £2.50. This improvement has been assisted by a new feature at meetings, the auction of donated leaflets, books, photocopies, etc.

Modelling quality continues to rise, as was evident at the October meeting when Ernest Keighley pointed out improvements to his fabulously complex loom. Still with the 'complex' theme, Brian Bloor showed a rare version of a powered 3-ladder fire escape, complete with elevation and rotation functions. Roger Dickinson has proved his aptitude for building cars time and again, and his American version was no exception. This was built to a special design to incorporate a radically different type of drive, of which we may hear more in the future! An improved version of SML 4 was the contribution from Harry Woifenden, an advanced modeller from Rochdale. Dick Watson of Manchester is very interested in historical models, in addition to a pre-war Aeroplane Outfit model. Dick reproduced the 1929 Set 6 Corliss 4 valve engine.

Hal Hussey is so well known for his pioneering work in Meccanographs, and justly so. His new generation of 'Supergraph' machines boast twin pen arms, 3-way table motion and even separate gearboxes for each pen arm! Towering above this was the first ever version of the January 78 MM 15 Ton Greiferdrehkran I've seen in the flesh, as it were, this was made by Alan Holman of Newton-le-Willows. The 'Grasshopper' beam engine by John Nuttall was another example of his quality engineering, amply demonstrating the original's unusual end-pivot beam operation.

Norman Mason's dealer display traction engine once again proved the old equation: advanced modeller plus giant Meccano outfit equals fantastic models! Making a welcome visit from Nottingham, Geoff, Julian and Francine Coles enchanted us with a fine collection of unusual items including 'Cedric the high wire cyclist' and an improved version of the Set 10 Robot, 'Robbie 2'. Many more models, many more people, but alas never enough space to do them justice! Yes, another good year for the NWMG; we look forward to 1979!

Michael J. Walker
31 Carus Avenue,
Hoddlesden,
Darwen, Lancs.

SOCIETY OF ADVANCED MECCANO CONSTRUCTORS

Our Autumn meeting on October 14th brought four new members to the S.A.M.C. John Evans had travelled all the way from Anglessey through what appears to be the Meccano 'desert' of North Wales. He had brought a clock in which he had made use of the Konkoly intermittent motion mechanism which figured in the M.M. relatively recently as an escapement. The principle is very attractive to watch although functionally unsatisfactory for accurate timing. Andrew Baxter from Banbury had accompanied our worthy President, Hubert Lansley, and had brought a model of a tripod test rig used to obtain subsoil samples. The model incorporated an ingenious yet simple friction clutch deserving of a wider public. 'Med' Meddings from nearby Solihull had a sparkling No. 10 Set fire engine on show and finally Johm Beardsmore had come with Pat Briggs from Nottingham.

The Society is fortunate to have two members offering information to the recently-formed Archive Committee. Jim Gamble told us of drawings for original parts, some unissued such as a four bladed propeller and a naval gun barrel. Hubert Lansley showed another model dating from his time as 'Spanner'. This was a somewhat of a mind-bending offering of a Tatham transmission dynamometer first built by Hubert under a pseudonym in October 1927 M.M.

Norman Gilber had brought his outstanding model of the Fowler ploughing engine which figured on the cover of the October M.M. Remarkably the Society could claim a second cover model at the meeting, for Bert Love had his No. 10 Set dockyard crane in new colours on show nearby. This advanced model is now on show at the Dutch Meccano agent in Amsterdam.

Roger Wallis had brought a quite unusual model of a gramophone made completely from Meccano parts with the exception of the microphone. The correct motions were followed and the pickup arm lifted at the end of the recording to return to the rest at the edge of the table. Roger has only to make the microphone now and the apparent impossible will be accomplished!

With nearly one-third of the members now recruits at recent meetings, older members felt much optimism for the future; nearly all had brought models, many showing original features. The meeting was one of our most successful, but left us with the ever-present problem of associating names with faces and models. Perhaps name tags will be required for our next meetong on March 17th or 24th 1979.

D. N. Whitmore,
Reports Secretary.

SOLENT MECCANO CLUB

The Solent Meccano Club held its Annual General Meeting at Twyford, near Winchester, on 12th September last. Our Chairman, Chris Goodwin, reviewed the past year's activities of the Club, and made particular reference to the successful Club Exhibition held in May. The Club Treasurer, Harry Gower, presented the financial report, and made a copy available to each member. The report showed that the Club is in a reasonably sound financial position.

Membership is also on a sound footing; the present membership standing at 20 adult and 12 junior members. Club officials were re-elected, with the exception of the Hon. Scretary, who, for personal reasons, declined to continue in the post, Our New Secretary is Charles Harrison from Eastleigh.

At the Annual General Meeting and a subsequent meeting, it was decided that the Club will hold two exhibitions in 1979; the first at Chichester on Saturday, 19th May and the second at Waterlooville on Saturday, 30th June, 1979.

It is hoped to form a Junior Section of the Club shortly, under the joint leadership of Stephen and Robert Hall, and a preliminary meeting was held in November. A further meeting of the adult members was held on 14th November and a number of interesting models were on display. Tony Knowles brought along an excellent Foliot Verge Clock of the 16th Century 'Nuremberg' trype driven by a No. 1 Clockwork Motor and based on the model designed by Pat Briggs published in the M.M. for April 1972. David Lewis displayed his Agricultural Traction Engine, a design originally within the scope of a No. 10 Set, but now with modified and greatly improved rear wheels. Brian Williams brought two Aeroplane Constructor Biplanes and also a model, mainly in nickel parts, of the Wright Flyer III of 1905, with operating rudders and elevators and contra-rotating propellers.

Tony Rednall displayed a type of Meccanograph which he describes as a Geometric Designing Machine and gave a talk concerning the mechanism involved and the designs it is intended to produce. He demonstrated the Designing Machine, but pointed out that it is still in its early stages of development and that there are numerous problems to be solved before it reaches a satisfactory stage.

It is intended that talks by individual members on their current projects and problems will be a regular feature of meetings of the Club from now on, and we anticipate some interesting models and discussions in the future. Anyone interested in Solent M.C. should contact the Secretary at 64 Dutton Lane, Eastleigh, Hants.

Brian Williams

SOUTH EAST LONDON MECCANO CLUB

The tenth meeting of the SELMC was held on 14 October 1978. Eleven members attended and some of the models shown are described below.

Adrian Ashford brought a partly-completed fire engine and wheeled fire escape. No detailed plans have been available for building the fire engine, as they were for the fire escape, but a very realistic looking model has taken shape. A Formula 1 racing car built from the new No 3 Set was brought by Frank Palin. It was based on Bert Love's model in the July 1978 M.M., but modified by Richard Whitmore to make the front wheels steerable and the motor drive have a larger ratio.

Geoff Davison showed a beach buggy using parts from the modern outfits with the new wide profile wheels, plus a few of the older parts. Also shown was a 'horseless ca 'age' taken from a 1950's M.M. and p ered by a No. 1 Clockwork Motor leil Bedford brought a partly comp ed rack and pinion locomotive wh.ch w.s shown at the last meeting. He also dem onstrated a model of a Landrover 'pick-up' truck. It is about 12½" long an is driven by a motor-with-gearbox in the 8 : 1 ratio. The steering mechanism is very simple and the winch is locked by a ratchet. Also shown was a small-scale half-track with gun, built in Army kit colours.

A remake of the Supermodel Breakdown Crane, with one or two modifications, was brought by David Smithers who wanted a good-looking model that worked, was not too big and was quick to build. It works nicely and he says it fulfilled all his expectations. He also showed a windmill from two pocket outfits. Not being satisfied with just one outfit, while on holiday several ideas emerged when a second was purchased; the windmill is one of them. Joyce Schoolar demonstrated an Exploding Ship and Submarine built from an old No. 7 Set with the minimum number of modifications. It shows the limitations of the set and a certain amount of artistic licence in the limitations of the set and a certain amount of artisitic licence in instructions and drawings. The submarine is loaded with a 'torpedo' (a Coupling) which is aimed at a plunger on the side of the ship. If it is hit with enough force this triggers a release mechanism and several elastic bands cause the deck plus bridge, funnel and guns to part company with the rest of the ship at rapid speed. Naturally only old red/green Meccano was used for such a model!

Meetings are held every three months in January, April, July and October. If anyone is interested in joining will they please contact the secretary:

Christopher Warrell,
Secretary
41 Beechill Road, Eltham,
London, SE9 1HJ.

STEVENAGE MECCANO CLUB

This report covers the period starting with the Henley exhibition, at which we and the Wellingborough and District Meccano Club were given a separate room for our combined display. The Stevenage Meccano Club fielded 50 members of assorted sizes and a good proportion of the 80 models that went on show. Although some of the latter were of No. 10 Set Dimensions, our main effort was put into models that other juniors might reasonably tackle. This was intended to encourage young visitors to the exhibition to give Meccano a go as a hobby. Our future adult experts must come from the juniors of today, and we earned the personal thanks of the Meccano Marketing Manager for our effective promotion of the product.

Our Secretary, Dennis Higginson, had suggested the 'baker's dozen' competition for the exhibition, and was called on to do the judging. The field was first narrowed down to three excellent models, after which Dennis decided the final order. All the entries were of a high standard, and the winners, including the second-place man Geoff Pratt of the SMC, thoroughly deserved their prizes.

If Geoff Wright accepts Dennis's Suggestion for next year's competition, you will all be buying 'S' extension sets, the idea being to build a model from the parts in that set alone.

The Henley show is now an annual meeting place for all the Club Secretaries, and Dennis values this contact with all the other Club organisers with whom he had long chats this year (1978).

The 1978 programme of events for the SMC was devastated by Dennis Higginson's long and frequent spells in hospital. At last, on the 25th October, the medics 'did something' that could bring Dennis some relief from his agonies of recent months. Well, in anticipation of the existence of a fit and active Secretary in 1979, the Stevenage Meccano Club is planning a full range of local exhibitions and displays, taking the hobby to many unexpected corners of Hertfordshire and beyond.

For those who are following the career of our Club magaine, Nutz and Boltz, a letter and a postal order to Neil Alston, 11 Gaunts Way, Letchworth, Herts, will secure the third issue.

New members to join this bustling band of Meccano fanatics since our last report to reach these pages are; Wallie Hinson, adult, from Dunstable, who, being a retired designer/draughtsman, has been thinking up lots of new models for the lads to built, and juniors Christopher and Jonathan Clark and Robert Leigh from Stevenage. I may not yet have mentioned my own offspring, Caroline and Thomas Dunkley, who joined some months ago. Caroline is the second female member.

Regrets are in orders, for 'Jock' Proud, a former group leader, has now left the Club for good, but with the Secretary's thanks for all the work he did and all the help he gave to the boys.

Alec Webb, the carnival king, and Neil Alston, the editor of our magazine, deserve special acclaim for efforts in 1978, but Dennis warmly thanks all the Club members for their contributions to displays and Club activities and looks forward to a lot more action in 1979.

Now, all you out there! The correspondence address of the SMC is 7 Buckthorn Avenue, Stevenage, Herts. Your scribe lives in neighbouring Knebworth.

Bernard Dunkley.

MAYLANDS MECCANO & HOBBIES CLUB (Inc.)

Last year we showed definate signs of recovering from our recent slump in club membership; we now have about twenty three members and model-building has increased.

On the 14th, 15th and 16th of July we had an exhibition at Morley City, a shopping complex. We exhibited models such as various motor chassis, a walking dragline, a giant ocean liner, a remote-control forklift, a mobile crane with castor steering, a meccanograph, a bucket dredger, a travelling gantry crane, a bagatelle table, a printing machine, and various original and multikit models.

We raise funds by conducting raffles,

Continued on next page

PROPOSED CLUBS

Atention readers within striking distance of Belfast in Northern Ireland and Livingston in West Lothian, Scotland! Mr. David Murphy of 10 Bradbury Place, Belfast, BT7 1RS and Mr. R.E. Martin of 6 Letham Holding, Livingston, West Lothian would each be pleased to hear from anyone in his respective area interested in getting together, either to form a new Meccano Club or at least to share a mutual interest if a formal club is not desired. We strongly recommend all who wish to get the best from their hobby to consider making conact.



POSTBAG

Meccano Magazine
P.O. Box No. 4
Binns Road
Liverpool L13 1DA.

GRANDFATHER CLOCK

Dear Mr. Jelley,

I recently obtained the photographs, together with the instructions, for Bert Love's Grandfather Clock that uses every piece in Set 10. I have studied the instructions very carefully and, although the frame of the clock is easy enough, many problems arise when tackling the mechanism and what pictures there are, being photocopies, are not very clear (although this is only to be expected).

In contrast to this, I also have in my possession the Supermodel Leaflet of the French Pacific Locomotive (No. 22). Although this is also a highly complex model, and complications inevitably arise, the drawings and instructions are superbly clear.

Turning back, now, to the clock, surely that classifies as a supermodel in the true sense of the world? After all, it does stand at 7'4" and is a masterpiece of design. So therefore I ask would it not be possible to include the clock in your range of Supermodel Leaflets? With drawings instead of photocopies, and matching instructions, it would be a pleasure to build.

Yours sincerely,
ANTHONY JOWETT

Silchester,
Nr. Reading, Berks.

(I totally agree that the Grandfather Clock is a supermodel in its own right, but I should point out that the photocopies of the illustration to which you refer were presumably copied from the MMQ in which the model was originally featured. Although I have never seen the photocopies, these no doubt having been supplied by Everything Meccano in Henley, I feel sure that the actual MMQ illustrations were of better quality. It is hoped that it will be possible to produce a leaflet sometime in the future using the original illustrations and instructions and this will at least be equal to the original magazine feature. Incidentally, the Supermodel Leaflet No. 22 you mention was produced in those far-off days when costs were virtually non-existent! All the photographs used were heavily retouched to achieve the maximum quality; it would cost hundreds of pounds to produce a similar leaflet today. This, in turn, would price the leaflet well beyond the reasonable level for the enthusiast.–Ed.)

PONTOON CRANE

Dear Mr. Jelley,

Did it every dawn on you that the speed of the centrifugal governor of a Steam Power Plant could be regulated by the use of an x-speed gearbox?

I built in bygone years once in a while such a model, but I never got the idea that Mr. A. Konkoly had: using a 4-speed gearbox. Well, I did not hesitate to build his machine. It was quite fun to do it. Fitting an electric motor for continuous running, the effect of the alternating speed of the governor can be better observed. Quite a model I should say; and did my grandchildren enjoy changing the speed of the governor!

Some weeks ago I considered using the Quadrants (167a) again in a model. After some reflection as to what kind of model should be built, I selected the 'Old Timer' Meccano Pontoon Crane. It fascinated me because for the retation of the superstructure different means of Meccano parts have been used in the course of the years. In the first model: Channel Segments No. 199 (now obsolete) and Sprocket Chain (see pre-war Meccano Standard Mechanisms SM 134). Later: Geared Roller Bearings No. 167 (now obsolete) see pre-war issue Meccano Super Model Leaflet No. 28. Again later: Flanged Rings and Sprocket Chain (see MM September/October 1968). And today: the Quadrants. (By the way I used the two motors as employed in the original version of the model).

I think model-builders have also discovered that the much-built Giant Blocksetting Crane is a good model for using the Quadrants, but so, too, is the Meccano Giant Dragline (Special Leaflet 27, pre-war issue). Does Meccano intend to publish instruction leaflets with models using Quadrants?

Yours sincerely,
W. SICKER

Zurich, Switzerland

(Regarding your question, Mr. Sicker, we have nothing specific planned, but we will bear the idea in mind. Ed.)

BALL RACE

Dear Ed and Fellow Meccanomen,

Considerable column space has been devoted to several ideas re. the construction of a smaller roller race. Haven't these people read the Meccano Constructors Guide?

I refer to the 7½" ball race which I believe to be the brain-child of the late E. Taylor. (I may be wrong).

For me, this is the ultimate roller race, as it requires no hooked rollers. It seemed, therefore, a perfectly natural step to scale down the whole assembly using 4" circular plates and 5½" circular girders.

Due to the fact that the inside measurement of No. 143 is slightly less than 4½", it was found necessary to use thin washers along with the collars, to separate both the inner and outer tracks of the bearing. For those who can't obtain the Electrikit washers, or whose scruples prevent them from using a 'substitute', satisfactory results can be obtained by using fishplates and angle brackets as extra packing. In one unit I built the assembly is mounted on a 6" plate using ½" pinions as distance pieces and alternate 1⅛" bolts through the 4" plates.

Just one of the many ways of mounting the bearing, as you will appreciate. Happy modelling from

BILL WOOLLISCROFT

Leek, Staffs.

INTERESTING

Dear Sir,

Let me congratulate you on your excellent issues of the Meccano Magazine. It seems to be very interesting and I hope that it stays this way.

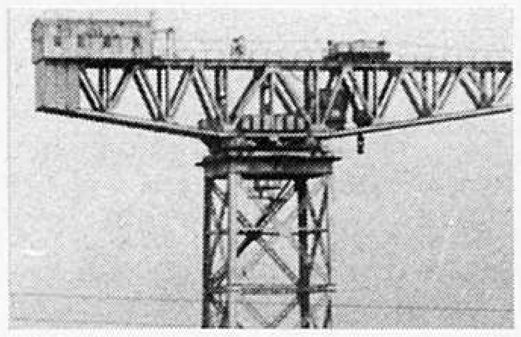
My father bought me my first Outfit when I was six years old. It was an Outfit No. 3. Now I have Outifit No. 10! The No. 10 model leaflets show splendid models—I have built some of them and everybody was enthusiastic about them.

I try to develop my own models, so the MM is a splendid magazine to help me with many instructions and ideas. Once again, congratulations on the Magazine and I, for one, hope it lives for years.

Your sincerely,
B. T. POSTHUMA

Zaandam, Holland

HAMMERHEAD CRANES



Dear Sir,

For many years I have been building Meccano Hammerhead Cranes, but have never seen a real crane anything like them—until last summer at Greenoch when I saw this one (see photo) straight out of a Meccano manual!

Yours Faithfully,
A. H. PALMER

Flixton, Manchester.

Continued from Page 33

stalls and so on. We had a marathon walk to King's Park and back, a distance of 12 miles. We raised a total of 220 dollars. Financially, this was the best marathon walk for five years.

The extensions to the front of the building, started six years ago, have been completed and our library is almost completed. After this is finished we will start to fix up the workshop down the back of the clubrooms.

In late 1978 we attended an exhibition at Belmont Park Racecourse, which was the biggest show since 1958, and we found this very enjoyable. At this exhibit we had much the same models, plus new models such as the supermodel dragline, funicular railway, Eiffel Tower, Automatic Shipcoaler, No. 9 Railway Breadkdown Crane, Locomotion No. One (M.M. July 78). We also had two original tow trucks one of which has three remote-control motions controlled by two powerdrive units and a fifteen volt electric motor. We also had help from a Mr N. H. Rossiter who supplied models such as a printing machine, rising swingers, traction engine, and a new No. 5 dragster.

We would like to commend Meccano Limited on the new sets; inclusion of gears in the smaller sets is one of the best ideas Meccano has had for a long time. We would also like to know the reason for Meccano not making its own motors anymore. We wonder what Frank Hornby would have to say about this!

Garin Taylor, Secretary,
Maylands Meccano and
Hobbies Club (Inc)
16 Kennedy Street,
Maylands,
Western Australia

SOUTHERN CALIFORNIA MECCANO CLUB

The Club public library display has been quite a success, being retained at the request of the libaries in which it has been shown several weeks past the original agreement. It was first set up at the Chapman Branch of the Orange County Public Library on September 7. The display consisted of three different 1933 Airplane Constructor set planes, a representative model from each of the multikits, combat, crane, highway and army plus literature explaining them in a glass showcase. A big wheel was set up near a power source.

This display was moved to the Eastgate Branch on the 19th of October where it will stay until the 17th of November. At that time it will be moved to a toy display room for the annual convention of the International Toy Buffs Association being held in Buena Park near Knott's Berry Farm on the on the 18th and 19th of November.

Club members in the Los Angeles area have been busy putting together both window display models and set models for A.V.A. International Inc. (U.S. Airfix). This program finally stopped when we ran out of the parts furnished us by A.V.A. Most models have been delivered and some interesting unique modles were made up.

The full meeting of the Club was held at the residence of Clyde Suttle on the afternoon of Saturday, 7 October 1978. Our special guest at the meeting was Mr. Herbert Shaw of Nottingham and also the North Midlands Group. Bert had to spend quite a few hours on buses between Santa Barbara and Los Angeles in order to make the meeting. The major order of business was the display of the different models made up for A.V.A. International Inc.

The winter meeting of the Club will be at the new residence of Anton Calleia on Saturday, January 6, 1979.

Clyde T. Suttle Jr. Secretary,
6062 Cerulean Avenue,
Garden Grove, California 92695.

TRANSVAAL MECCANO GUILD

The Transvaal Meccano Guild has held three meetings since the Hobbies Fair which was reported in the October 1978 Meccano Magazine. At the September meeting we celebrated our 6th birthday with a cake decorated with parts donated (temporarily) by our Chairman, Peter Matthews. Modelwise the meeting was disappointing, probably an after-effect of the effort put into the Hobbies Fair exhibit. The November meeting was our annual meeting held at Jaap Kies's house in Pretoria.

There was so much talking at this meeting that two competitions intended for this occasion were postponed until the November meeting, held at our usual venue in Johannesburg. One competition was to look at a small loco and write a parts list, a limit of one minute being put to the observation time. Trevor Attwell won after a tie was decided by flipping a 38. There was a most gratifying response to the simplicity model competition, with 25 models being entered. A great deal of inspiration and ingenuity was evident.

Trevor's model bulldozer, with Sprocket Chain tracks and a driver with a Socket Coupling body, Rod and Strip Connector arms and legs and a Handrail Coupling head, was voted the best model. A close second was a really simple and effective model bird, sent in by Ian Laing, one of our country members from Bloemfontein. Third was Paul Hatty's tractor and trailer using ½" Pulleys as front wheels and universal gears as the rear. Among the other models were a 0-6-0 loco with large Washers as wheels and Couplings as the boilers, a jet plane using Couplings as the body and 1½" Strips to form swept back wings, a simple but effective telephone set, a Xmas cracker made from two Socket Couplings and a clown making use of several Multikit parts.

There was a tricycle and a motorcycle and side-car using ½" Pulleys as wheels. We had a dragonfly with Propeller Blades as wings and Wire Hooks for legs, a centipede with a body made from Couplings and screws as legs, and a dog with a Coupling body and Rod and Strip Connector legs. Also to be seen were a penny farthing with a spoked front wheel and a Multi-purpose Gear with a 1" Rubber Ring at the back, a lawnmover with a couple of dozen Fishplates as the blade, and a minute cannon using Collars as wheels and a Right-angled Rod and Strip Connector as the wheels. Slightly more elaborate (but how does one define a 'simplicity' model?) was a windmill and water tank and a wood-burning loco using multikit steering wheels as driving wheels.

At our next meeting the competition is for a vehicle built with the following constraints:— (i) It must have 4 wheels on the ground. (ii) It must use neither electric or clockwork motors nor may it be steam driven. (iii) It may contain no electrical parts (e.g. coils or selenoids). (iv) Not more than two standard driving bands may be used. (v) No pyrotechnic device may be used. (vi) All models in the competition to start behind a board. When the board is removed, the model must start moving without auxilliary help.

The model which travels the furthest will be the winner. Good luck to all potential inventors of perpetual motion devices with which to solve the world's energy crisis.

Jacques Rossouw,
Hon Secretary,
Transvaal Meccano Guild,
66 4th Avenue,
Parktown North,
Johannesburg 2193,
R.S.A.

Meccano Mouse
COMPETITION RESULTS

Report by Alan Partridge

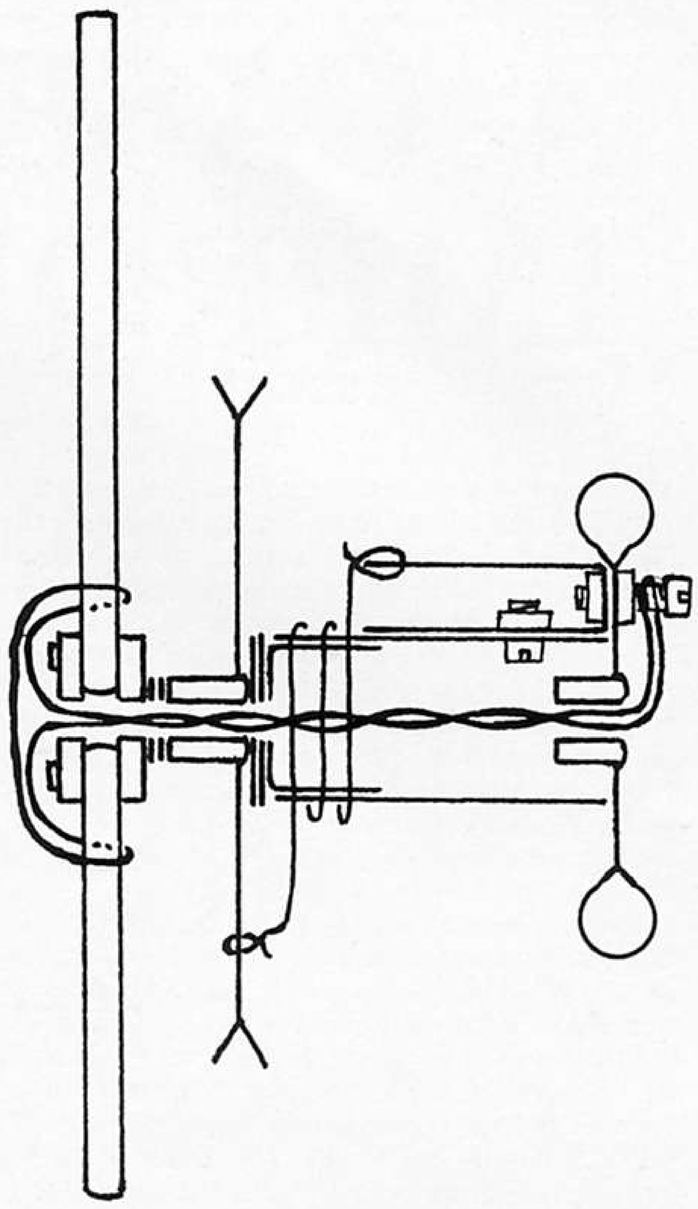
AS I rather expected, the majority of the entries used the Magic Clockwork Motor as the source of power, and took the form of tricycles with tiller steering of one wheel. The tiller was initially set on right hand lock, and after one circle snapped over the left hand lock (or vice versa) pulled by a Driving Band or Spring. With the Magic Motor taking 3½ oz. these entries weighed in at 5 oz. upward. The crane set electric motor is only 2 oz., but four AA cells would add another 3 oz., so the clockwork motor is a better choice.

The lightest of these, at just 5 oz. (140g) came from John C. Robert. It uses a very neat method of releasing the tiller: the expansion of the mainspring pushes down a lever which is loosely pivoted to one of the motor lugs and resting against a Corner Angle Bracket 154a bolted to another lug, as shown in Fig. 1.

The lightest entry of all, however, came as a complete surprise. It came from John D. Briggs of Nottingham. His father is a close friend of mine, but there was no collusion. This 'mouse' had only two wheels, and a tail, and showed that there *is* enough power in a Meccano Driving Band. It is based on a toy 'tank' which many of us made as small children from a cotton reel, a rubber band, a pencil, and a matchstick, with a dab of plasticine to hold the match across one end of the reel.

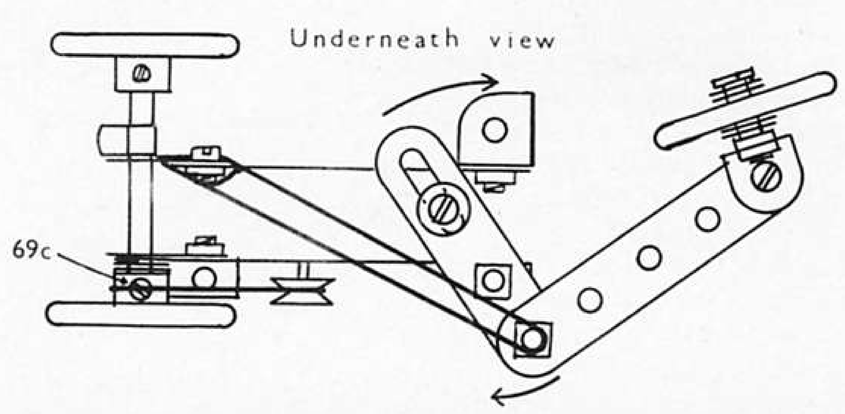
In John's version (Fig. 2) the pencil becomes two Rods, 2" and 3", joined by a Coupling. The cotton reel becomes a Sleeve Piece with a Chimney Adaptor pushed into one end and a 1½" Pulley with tyre secured by a Single Bent Strip at the other. A 3" Pulley without tyre lies against the Chimney Adaptor, secured to it only by a Driving Band passing through from end to end, i.e. from 1½" Pulley to the Coupling, as shown in Fig. 2. In addition the pulleys are linked with a few inches of cord, as shown. When the band is wound up, it at first drives only the 1½" Pulley, and the device turns about the 3" Pulley. This winds up the cord on the Sleeve Piece. When the cord is tightly wound it locks the two pulleys together and the whole assembly circles in the opposite direction. Total weight of the 'tank' mouse is 4¼ oz.

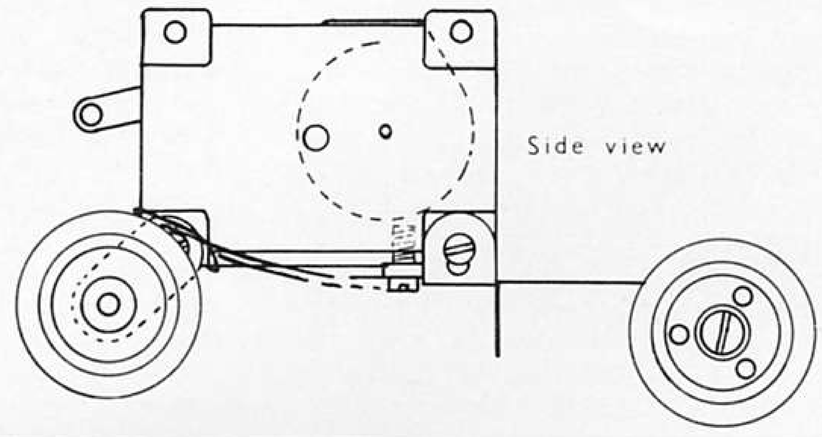
I doubt whether the first move of the 'tank' mouse can be reckoned as the top loop of a figure-of-eight: certainly it would not go round a fixed post, as the Gossemer Condor was required to do. I must therefore regretfully disqualify this entry, and I recommend that the prize should go to John C. Robert. Incidentally, he wrote from a school in Germany, adding that he got his 'mouse' down to 'fighting weight' and completed his entry in two days. Heartiest congratulations!



Above: Fig. 1, the lightest Magic Motor mouse.

Below: Fig. 2, 'Tank' mouse.





In View

'THE MECCANO SUPER MODELS' The Hornby Companion Series Vol. 2. by Geoff Wright, published by New Cavendish Books.

Available from: M. W. Models, 165 Reading Road, Henley-on-Thames, and booksellers everywhere.

Price £11.50.

It is not often that one has the pleasure of reviewing something with such total satisfaction as with this beautiful book. For here in one volume are all the vintage Super Models, perfectly reproduced to original size on fine art paper. This is the second volume of the Hornby Companion Series and it comes in size a tiny bit smaller than the first, though not sufficient to matter on your bookshelf. Whereas, you may recall, I had some misgivings about the format of the first volume, all is now redeemed and the presentation of this one is absolutely right and impeccably done.

It begins with an introduction by Geoff Wright with illustrations taken from early 'Meccano Magazines' of selected prize-winning and giant models to remind us that the first half of the 20th Century produced Meccano models at least the equal of today's sophisticated structures. The Super Model Leaflets themselves (44, including variants) are reproduced in order. The variants include an adaptation of the Pontoon Crane to suite the Geared Roller Bearing, and the Motor Car Chassis was completely redesigned. There are alternative versions of other models and the Editor does discuss these several reconstructions at some length in his introduction.



As if all this were not enough, there is a full-size, complete reproduction, with full-colour covers, of the 'Meccano Book of Engineering'. This section is very well combined with the rest of the book, on similar paper, and represents a splendid piece of work in itself. The volume is rounded off with a table of Publication Data and an index, and is strongly bound; even the dust jacket is lovely—a reproduction of the early 1930's Meccano box lid picture.

The Editor is, of course, no stranger to readers of this Magazine and he has brought his immense authority to bear upon his subject. I feel Geoff Wright is to be congratulated on preparing such a mouth-watering galaxy of goodies. Even the price, though sizable, is a bargain because, if you sought to obtain photocopies of these rare documents, it would cost you twice the price of the book; whilst to purchase originals, if you could, would set you back a very large sum indeed. The Publishers are also to be praised for the astonishingly good qualify of the reproduction which in many illustrations actually comes out more legible than the originals.

This is not just an excellent and attractive book, it is the working manual that the enthusiasts have been waiting for. If you are an enthusiast you will not be disappointed. But it will also appeal to anyone who prizes collectors' materials, not to mention those many people who cherish happy memories of Meccano modelling in their youth. For them it could herald a return to the Meccano hobby.

ALF REEVE

A CASE FOR IMPROVEMENT

Swivel Bearings & Universal Couplings

THE Swivel Bearing, Part No. 165, and the Universal Coupling, Part No. 140, differ from nearly all other listed Meccano parts in that they are not 'original' parts in themselves, but are both made up from other components. These components are the Small Fork Piece, Part No. 116a, a 'spider' which is like a Collar, but with four threaded holes, sold separately only as Electrical Part No. 500, and a special shouldered bolt which is not listed separately at all by Meccano Limited, though it is available from Everything Meccano (M.W. Models) of Henley-on-Thames.

Although often mistaken for an ordinary set screw, this shouldered bolt differs considerably in having a) below the head, a short plain section 5/32" diameter which is a free-running fit for the holes in the arms of the Fork Piece and, b) between this and the threaded section, a narrow groove. This groove actually serves no useful purpose and I suspect it results from the shouldered bolts being produced on a lathe, unlike the standard Bolts which have the threads rolled on to them. The shouldered bolts make useful items and, in purchase of second-hand Meccano, it is worthwhile looking very carefully through the Nuts and Bolts, and all the wheels with set screws, for them.

Both the Fork Piece and the shouldered bolt require modification before the assembled parts will function properly. The arms of the Fork Piece are curved, viewed from the end. When the spider is swivelled, it comes against the turned down edges, so it cannot swivel far. The arms should be flattened as shown in Fig. 1 and this can be done with smooth-jawed pliers, or by putting a piece of ¼" or ⅜" square bar in a vice and hammering the arms on to this. The space between the arms must be kept just enough for the spider, or any other Collar, to pass freely into the gap with very little play.

When a Swivel Bearing is re-assembled, the tips of the shouldered bolts will be found to project into the central hole of the spider. The tips must be filled short until they do not project and the Rod can be passed freely through the spider. If such a Rod is to be secured, this should be achieved by a Grub Screw in one of the unused holes of the spider. If an unmodified shouldered bolt is driven into a central rod, the groove mentioned above will still show outside the spider, and the arm of the Fork Piece will rest very loosely in it.

When a Swivel Bearing is re-assembled, the tips of the shouldered bolts will be found to project into the central hole of the spider. The tips must be filled short until they do not project and the Rod can be passed freely through the spider. If such a Rod is to be secured, this should be achieved by an Grub Screw in one of the unused holes of the spider. If an unmodified shouldered bolt is driven into a central rod, the groove mentioned above will still show outside the spider, and the arm of the Fork Piece will rest very loosely in it.

When a Universal Coupling is re-assembled with unmodified shouldered bolts, the tips of the bolts will be found to clash in the centre, so that one or more of them has the groove visible and the Fork Piece is a sloppy fit in it. In this case, only one opposite pair of bolts needs to be filed short, or if all four are filed, a smaller amount of metal need to be taken off each. I have previously seen it recommended that a Universal Coupling should have a short piece of axle rod (sawn off, ¼"-⅜" long) put in the centre for all the shouldered bolts to be driven on to, and I did for a while support this advice. However, I now realise that this is the wrong approach; what keeps the bolt firm in the spider should be that it is driven until the smooth section is hard against the outer surface of the spider.

A useful tool for any model-builder (except a whiter-than-white purist) is a fine rat-tailed file, maximum diameter just under 5/32". When things are a tight fit even after you've done your best with the Drift, it is better to 'ease' with this file than ram a bolt through and damage the thread. If such a file is available, it may be used for correcting the shouldered bolts. Each bolt in turn is driven firmly, its tip marked by a few strokes of the tip of the file, then taken out and finished as shown in Fig 2. This removes less metal and is a really neat job! However, a bolt treated in this way belongs only to the hole to which it has been made, e.g. in a Universal Coupling which will be kept assembled permanently. But if you keep changing about between Swivel Bearings, Universal Couplings, and other arrangements (e.g. if you have two Universal joints in series, two Strips spaced ⅜" apart can take the place of two Small Fork Pieces and the rod joining them) file the tips of all your shouldered bolts flat, so they are inter-changeable.

By Alan Partridge

Fig. 1

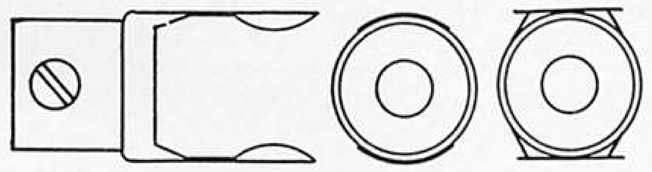
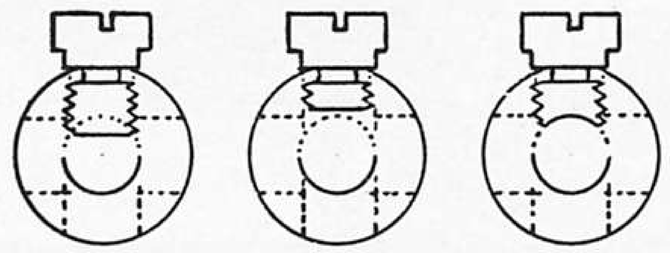


Fig. 2



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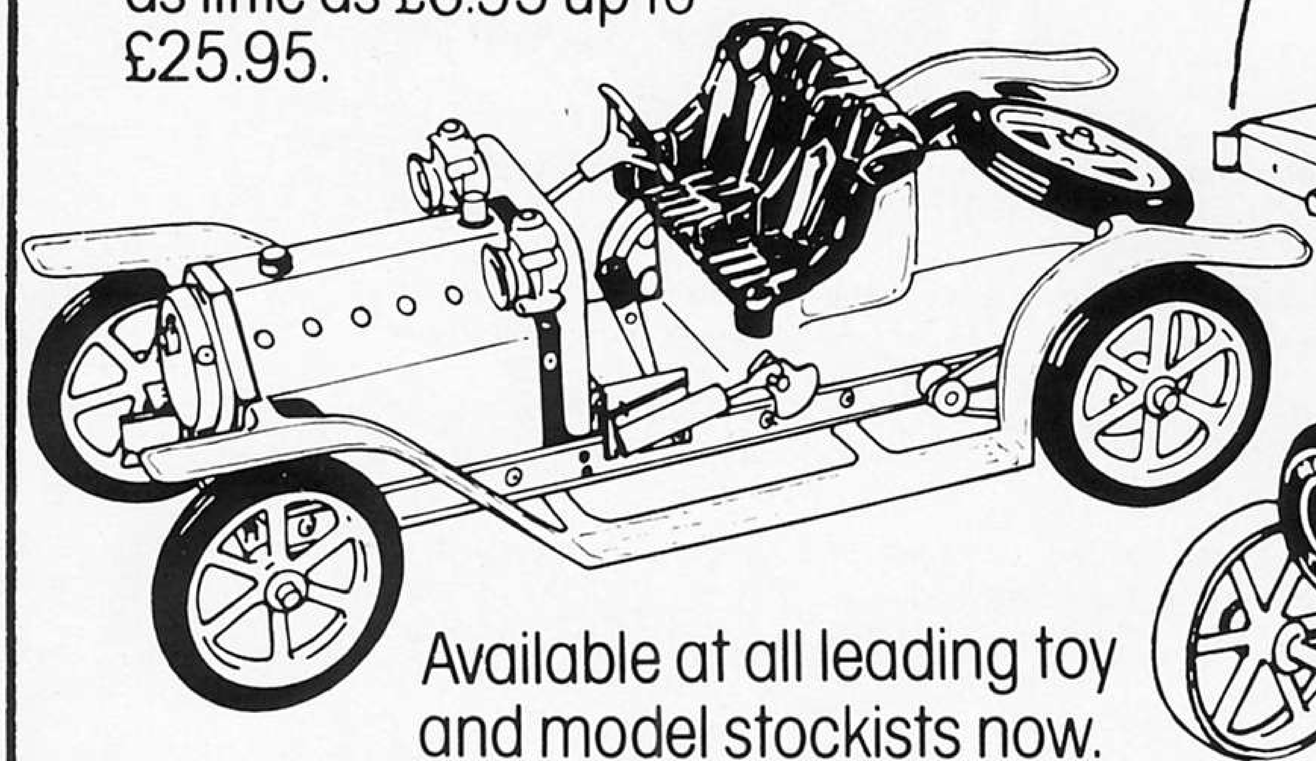


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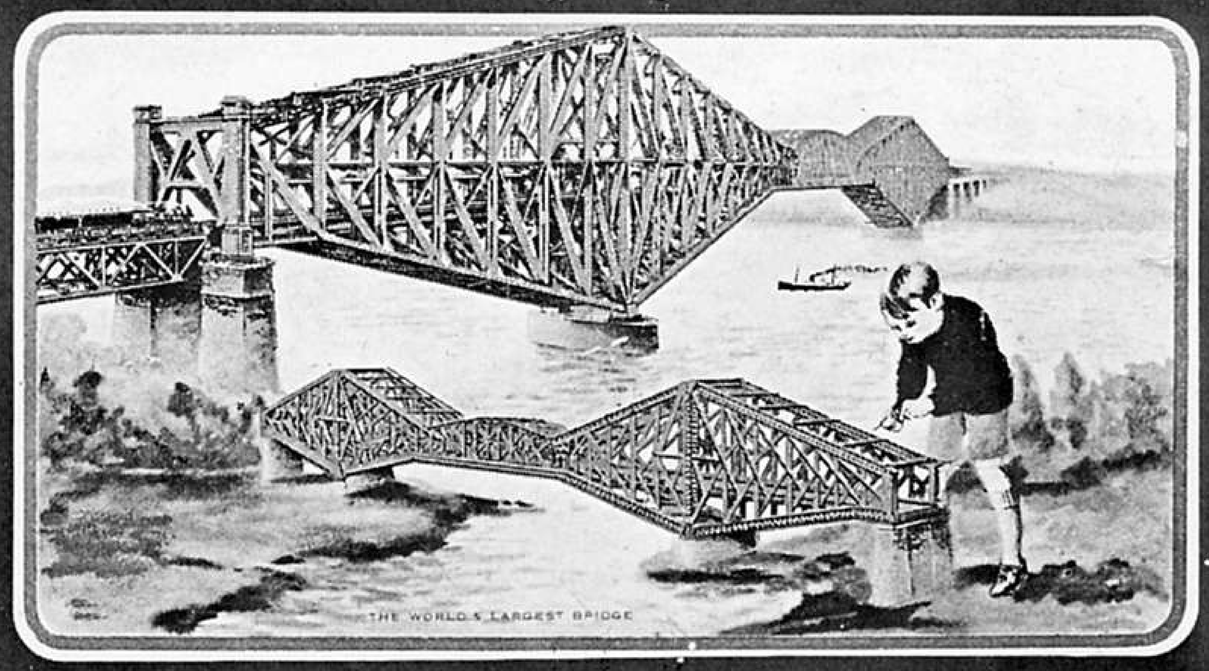
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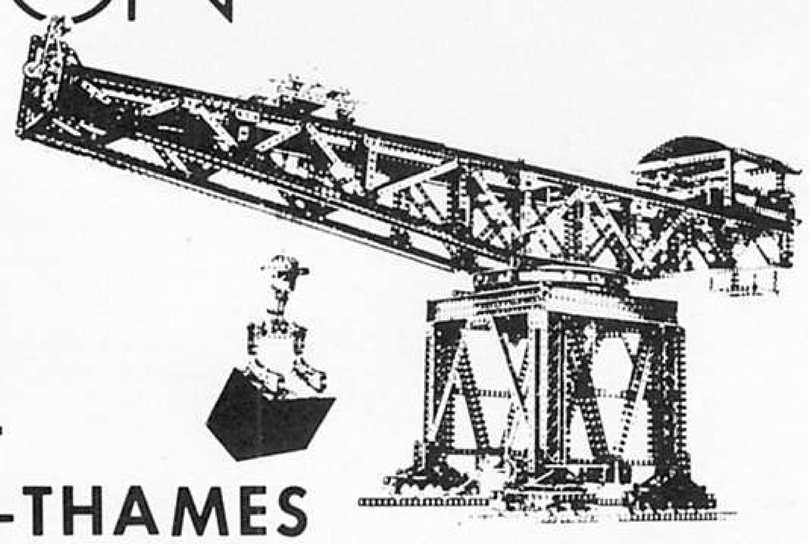
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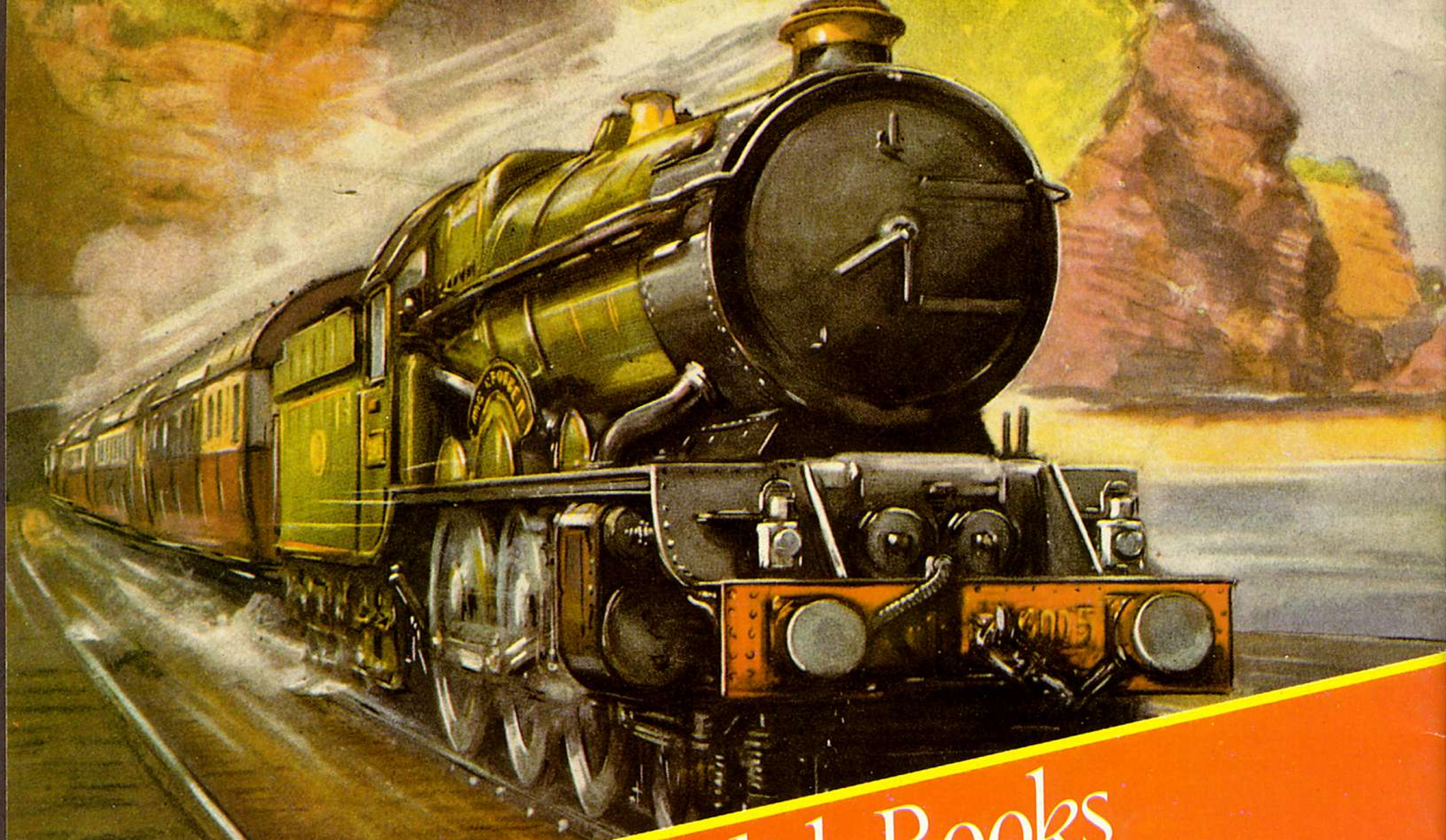
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